

Users Guide

OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT**OFFICE OF THE DIRECTOR**

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Dear Colleagues:

On behalf of California's Office of Statewide Health Planning and Development (OSHPD), I am pleased to preface our latest report on the outcomes of care in California's hospitals. These outcome studies, mandated by legislation (Assembly Bill 524) signed by Governor Wilson in 1991, are based on data routinely abstracted from hospital medical records and reported to OSHPD for every patient discharged from a California hospital.

This third report on heart attack mortality rates expands and improves upon earlier studies using a larger body of data, refined risk-adjustment methods, and linkage to death certificate information. The study, therefore, represents an important contribution in efforts to evaluate the quality of health care provided throughout the state.

OSHPD had overall responsibility for the project. Andra Zach, R.R.A., M.P.A., served as coordinator. The statistical studies were performed by a distinguished team of researchers from the University of California medical schools at Davis and San Francisco, led by Patrick S. Romano, M.D., M.P.H., and Harold S. Luft, Ph.D. In addition, the Project had the benefit of valuable suggestions from several advisory bodies: the California Health Policy and Data Advisory Commission; its technical advisory committee, made up of representatives of the health services research, hospital, nursing, medical, health information and consumer communities; and from a panel of clinical experts in the field of cardiovascular disease.

OSHPD's primary goal in conducting such studies on outcomes of care, and reporting the results, is to improve the quality of hospital care available to all California citizens. The report provides hospitals with systematic information about their patient care results in comparison to other facilities, and encourages them to examine their processes of care to determine those which result in the best outcomes.

The AB 524 legislation responded to needs expressed by health care purchasers, providers and consumers to have publicly available information that objectively compares hospital performance in patient care. The legislation called for selection of medical, surgical, and obstetrical conditions for study of outcomes of hospital care. The first conditions selected were heart attack (acute myocardial infarction), back surgery (cervical and lumbar disk excisions), and maternal outcomes of obstetrical care (vaginal and cesarean deliveries). Several reports related to these studies have already been published. A study on the outcomes of care of hip fractures is in progress.

The Office of Statewide Health Planning and Development has made a long-term commitment to provide public information describing the quality of care delivered in California hospitals and, eventually, in other settings of care as well. With the assistance of its advisory bodies and colleagues in the health care community, the Office seeks continued improvements in data collection and analytical methods so as to enhance our ability to evaluate the performance of California's health care institutions.

The Office welcomes your comments and suggestions regarding these reports.

Sincerely,

David Werdegar, M.D., M.P.H.
Director

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Report on Heart Attack, 1991-1993

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Acknowledgments

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Andra Zach, R.R.A., M.P.A. had overall responsibility for all aspects of the project, serving as liaison between OSHPD, the research team, and the included hospitals. OSHPD staff conducted the death certificate linkage and had primary responsibility for writing the *User's Guide*.

The contract team at UC Davis was supervised by Patrick S. Romano, M.D. and Julie Rainwater, Ph.D. The contract team at UC San Francisco was led by Harold S. Luft, Ph.D. Dr. Romano had primary responsibility for writing the *Technical Guide*. Dr. Luft and Dr. Romano had primary responsibility for writing materials accompanying the *Detailed Statistical Results*. Drs. Romano, Luft, and Rainwater, had primary responsibility for writing the *Hospital Guide*, with the assistance of Michael Schembri and Ben Chan, M.S.

Ben Chan, M.S. was responsible for most of the data processing and statistical analyses, with the assistance of Dr. Romano. Michael Schembri prepared the table for the *User's Guide* and provided programming for the *Detailed Statistical Results* and the *Hospital Guide*. Hong Zhou, Ph.D. consulted on statistical issues. Linda Remy, Ph.D., and Theodore Clay, M.S., created the study files from the OSHPD discharge data set.

Rebecka Levan, M.P.H., Leah Vriesman, M.H.A., M.B.A. and Gerald Kominsky, Ph.D. of UC Los Angeles provided suggestions for formatting and presentation style of the *User's Guide*.

A number of individuals provided guidance and advice in the design of the study and provided helpful comments on this or previous reports: Edward Hannan, Ph.D., Clifton Bailey, Ph.D., Lisa Iezzoni, M.D., Gregory S. Binns, Ph.D., along with members of the Technical Advisory Committee and the Clinical Panel.

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Report on Heart Attack

The California Hospital Outcomes Project is an initiative mandated by the State of California, and conducted by the Office of Statewide Health Planning and Development (OSHPD), to develop public reports comparing hospital outcomes for selected conditions treated in hospitals throughout the state.

The Report on Heart Attack is intended to encourage all California hospitals to improve their care and give credit to the hospitals that are the leaders. It can also help insurers, employers, and consumers to select hospitals based on quality of care.

The California Hospital Outcomes Project

Heart attacks (acute myocardial infarctions or AMIs) were chosen as one of the first conditions to be reported upon by the California Hospital Outcomes Project because they are important, common, and deadly. Every year approximately 40,000 heart attack patients are admitted to 400 California hospitals. More than 5,000 of these persons die.

The mortality rates published in previous heart attack reports have been used in many ways. Hospitals have used their results to evaluate and improve their quality of care. Payers have used the reports to contract with the best hospitals. Consumers have used the reports to make more informed decisions.

The results published in this report are useful because:

- **They have been risk-adjusted.** Patient age, sex, type of heart attack, and chronic diseases were used to adjust for differences in patient risk when calculating hospital mortality rates.
- **They have been validated.** A major validation study involving nearly 1,000 heart attacks at 30 hospitals showed that variations in how hospitals report their data to OSHPD do not significantly affect their risk-adjusted death rates. In general, low-mortality hospitals treat heart attacks more aggressively than high-mortality hospitals.

Content of the Report on Heart Attack

This is the third report on heart attack. The first report was published in December of 1993 and the second report was published in May of 1996. This year's report includes heart attack cases from 1991 through 1993. Although 1991 and 1992 cases were included in last year's report, results shown in the current report may be different because the methodology has been improved. These improvements include:

- Linking with Vital Statistics records to ascertain deaths occurring outside the hospital.
- Refining certain patient risk-factor definitions based on the findings of the 1996 validation study.
- Using six months of pre-heart attack hospital records to more completely describe patient risk factors.

This year's report consists of five components:

The *User's Guide* (Volume 1) is intended for all those interested in hospital performance including hospital staff, employers, government agencies, health plans, and insurance companies. This volume provides a brief description of the study background and methods. It also contains two tables that display the results for individual hospitals based on heart attacks that occurred between 1991 and 1993.

The *Technical Guide* (Volume 2) is intended for health services researchers, health care providers, and others interested in the statistical methods used to calculate risk-adjusted death rates.

The *Detailed Statistical Results* (Volume 3) contains the numerical results for individual hospitals upon which the classifications in the *User's Guide* are based. In addition, there are tables that aggregate the results to the county level. It also contains a graphical representation of both individual hospital and county-wide results, which can be used to examine annual trends. An electronic version of the tables is available on diskette.

The *Hospital Comment Letters* (Volume 4) is intended to give readers of the *Report on Heart Attack* an appreciation of its strengths and weaknesses from the hospitals' perspectives.

The *Hospital Guide* accompanied patient specific information that was sent to each hospital several weeks before the *Report on Heart Attack* was published. Hospitals used this information to prepare their comment letters, which are provided with each volume of the report. More importantly, hospitals and their physicians can use this information to target areas where heart attack care might be improved.

To obtain these documents contact:

Office of Statewide Health Planning and Development
Data User's Support Group
818 K Street
Sacramento, CA 95814
(916) 322-2814

Documents, excluding the *Hospital Guide*, are available on the internet at <http://www.oshpd.cahwnet.gov>

Section

1

Using this *Guide*

The User's Guide of the Report on Heart Attack is intended for all those interested in hospital performance for heart attack care. These may be hospital staff, employers, government agencies, health plans, insurance companies, other health care purchasers and payers, as well as individual consumers..

Hospitals

The *Report on Heart Attack* compares heart attack mortality rates for all California hospitals after adjusting for differences in patients' age, sex, and physical health. One of the primary purposes of the report is to improve the quality of heart attack care in **all** California hospitals by encouraging members of the medical and nursing administrative staff and other hospital staff to incorporate this information into their quality management activities.

Use the information in this volume, which summarizes the risk-adjustment methodology and results, as a starting point. Use the graphs to compare your risk-adjusted mortality rates with the statewide benchmark. Examine the *Detailed Statistical Results* to compare your expected mortality rate with your actual mortality rate. Evaluate your hospital's performance along with the performance of other hospitals.

Use the information in the *Hospital Guide* and *Technical Guide* to target areas for potential improvement. For example, you may want to analyze how the risk-adjusted mortality rates in your hospital after a change in cardiac care protocols. After quality improvement interventions have been implemented, use the information in this report to determine if those interventions have been successful.

Employers and Health Care Purchasers

The information in this report can be useful in your interactions with both health insurance organizations and employees. Use this information, along with the information in the other volumes of this report, as one tool to select and negotiate with insurance carriers on behalf of your employees. Share this information with your employees to help them select a health plan.

This report examines only one dimension of hospital quality; it is not a comprehensive measure of overall quality. No such single measure exists. Other organizations, some of which are listed in the Appendix on page 78, monitor different aspects of health care quality. Information from these organizations can be used to augment the results published in this report.

Government Agencies

The information in this and the other volumes of the *Report on Heart Attack* can be useful to state and county agencies involved in arranging care for program beneficiaries. The results can be used in selecting hospitals and in negotiating with managed care organizations.

This report provides information on only one aspect of the quality of care at a particular hospital : the care of patients with heart attacks. It does not address the quality of care for any other condition and should not be used as a general measure of hospital quality.

Health Plans and Health Care Payers

The information contained in the *Report on Heart Attack* can help you select hospitals to provide services to your beneficiaries. For example, one large California insurer contacted all of its contracted hospitals. The insurance company asked hospitals how they used their heart attack mortality rates to improve the quality of patient care. Even though the published rates are several years old, a hospital's response can indicate something about its commitment to quality.

You may find it helpful to read the other volumes of the *Report on Heart Attack*. The *Technical Guide* will help you understand exactly how the study was done and how the results were calculated. The *Detailed Statistical Results* contains the exact numerical values upon which the results in this volume are based. It also presents graphs of each hospital's annual results.

Remember that this report examines a single dimension of hospital quality and should not be used to evaluate the quality of any hospital services other than heart attack care. Use information from other organizations to augment the findings of this report.

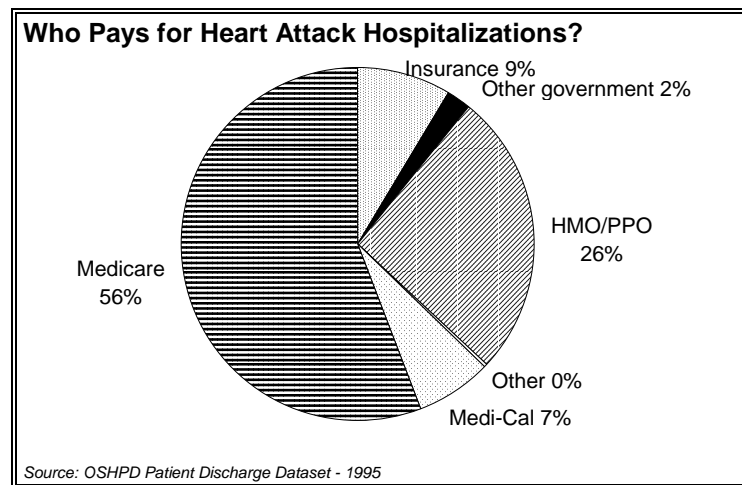
Individuals

Although this report is not specifically intended for individual consumers, it can help you make more informed health care decisions.

Use this information now to prepare yourself in the event that you or someone you know suffers a heart attack. Look at the hospitals you might use in the event of a heart attack. Discuss this information with your physician, health plan, or employer to understand the choices you have in hospital care.

Each year 900,000 people in the United States suffer a heart attack. Approximately 225,000 die. About half of these people die before they get to a hospital. The key to surviving a heart attack is getting to the hospital to begin

treatment as quickly as possible. Do not ignore or deny symptoms, do not be embarrassed to go to the hospital, do not wait to seek care.



Evaluating Hospital Quality

Although this report focuses on outcomes, there are many ways of measuring health care quality. No single method is universally accepted as superior. However, some methods are better suited to answering specific types of questions.

Measuring Health Care Quality

Often quality is measured simply by asking patients if they find care satisfactory. The difficulty with this type of evaluation is that patients have very little clinical information upon which to base their judgments. **Patient satisfaction** may be driven by such things as personal interactions with physicians and nurses, the appearance of the facilities, and other factors not necessarily indicative of medical expertise or clinical quality.

One of the most common ways of evaluating health care quality is to examine the hospital's staff, equipment, and facilities. These attributes are called the **structure of care**. For example, one might look at staff credentials, staff-to-patient ratios, or the availability of specialized services. Although these characteristics are important and easy to measure, they tell more about the care patients *might* receive than the care patients *actually* receive.

Some quality assessment techniques do measure directly the care that is received. This approach evaluates the **process of care**, which includes such things as diagnostic accuracy and the appropriate use of drugs, tests, or treatments. This type of quality evaluation can be particularly useful to doctors, nurses, and hospitals even though the most appropriate care is not always easily defined or agreed upon. Measuring the process of care can be controversial and difficult for a non-clinician to interpret.

All of the above methods fall short of answering the question that is most important to patients — “Which hospital or doctor is most likely to make me better?” Answering this question requires measuring the **outcome of care**. Positive outcomes, such as improved health or improved functional status are very common but are also very subjective and difficult to measure. Adverse outcomes, such as complications, disability, or death are much less frequent. The easiest adverse outcome to measure is death but the others are also important to consider. Although measurement of outcomes seems to provide the most direct answers to questions about health care quality, it is perhaps the most technically complex measure.

Risk-Adjusted Outcomes

Comparing hospitals on their outcomes is difficult because different hospitals treat different types of patients. Some hospitals treat patients who are older or sicker than those at other hospitals. A technique called **risk-adjustment** accounts for these differences in patient characteristics. **Risk factors** are the patient characteristics that might influence the outcome of medical care.

In this report, we are evaluating death rates following heart attack. If one hospital receives sicker patients than another hospital, we would expect it to have more heart attack deaths. Adjusting for patient characteristics allows us to compare all hospitals with the statewide benchmark.

Strengths and Weaknesses of Risk-Adjusted Outcomes Measurement

The most important strength of risk-adjusted outcomes measurement is that it attempts to answer the questions that are most relevant and understandable to health care purchasers and consumers. They have a right to know the value of the health care that they pay for. In seeking economical care, they need reassurance that they will not sacrifice quality of care.

Risk-adjusted outcomes measurement is very useful to hospitals and physicians for targeting areas that need improvement. After the target areas are identified, hospitals and physicians need to know more about what they should do differently. For this reason, hospitals and physicians focus on the structure and process of care in their quality improvement activities. They can use risk-adjusted outcomes to determine if these activities have been successful.

The principal weakness of evaluating quality based on risk-adjusted outcomes is that it is impossible to account for every single risk factor that may influence a particular outcome. It is possible that an adverse outcome was the result of unmeasured risk rather than poor hospital quality. Furthermore, although the design of this study attempts to account for chance, it can be an important factor for hospitals treating a small number of heart attack cases. A high quality hospital may experience a large number of deaths, just as one may flip a coin several times and get all tails.

California is one of only a handful of states attempting to measure health care quality. The methods and techniques for measuring outcomes are still in development and may occasionally result in the misclassification of an individual hospital. However, the methods used in this study have been validated by reviewing approximately 1,000 medical records of heart attack patients throughout the state.

The primary objective of this report is not to single out individual hospitals but to motivate all hospitals to take a closer look at the care they provide for heart attack patients. The experience in other states provides some

evidence that this can happen. Since 1990, New York has published hospital mortality rates for heart bypass surgery. During the subsequent 3 years, their statewide mortality rate dropped from 4.17 percent to 2.45 percent, a decrease of 41 percent.

FREQUENTLY ASKED QUESTIONS

Q: *What was the time period covered?*

A: Three years of data were included in the study: 1991, 1992, and 1993. Aggregate results are presented in this volume and annual results are presented in the *Detailed Statistical Results*.

Q: *How many hospitals were included in the study?*

A: 1991: 398 hospitals

1992: 401 hospitals

1993: 400 hospitals

Overall: 418 different hospitals were included for at least one of the years

Section

3

Measuring Heart Attack Mortality

This heart attack study calculates the percent of hospital patients who died within 30 days following a heart attack. It compares the death rates among California hospitals after considering the fact that different patients have different chances of dying due to individual risk-factors.

Data Sources

The data used in this analysis came from two different sources: the California Hospital Discharge data set collected by OSHPD and the California Vital Statistics data base maintained by the California Department of Health Services. The discharge data base was used to identify heart attack patients and the risk factors. The vital statistics data base was used to determine which patients died within 30 days of suffering a heart attack.

The discharge data base contains information on all patients admitted to non-federal California hospitals. It includes patient demographic data such as age, race, and zip code of residence, and hospitalization data such as length of stay and total charges, as well as a list of diagnoses and procedures. This information was used to select the cases to be analyzed. The goal was to include all patients over 18 years of age who had just suffered a heart attack due to coronary artery disease. Patients hospitalized prior to 1991 and after 1993 were not included in this study.

All non-federal acute care hospitals in California were eligible to be included in this report. Some hospitals were not included for two possible reasons. First, some hospitals had no patients meeting the inclusion criteria. Second, some hospitals had eligible patients but were excluded because of unusual patterns in the discharge data they reported to the State. The most common such pattern was an implausibly low percentage of patients with a common risk factor, such as high blood pressure.

Risk Factors

Some hospitals have sicker patients than others. To make comparisons as fair as possible, we adjusted for severity of illness. A combination of clinical expertise and statistical tests were used to identify the risk factors that were used in the adjustment process. This process used all information reported by hospitals, including patient age, sex, the type and location of the heart attack, and the specific chronic diseases in the table on the next page.

Two different statistical models, or sets of risk factors, were used to adjust for patient differences. Some demographic factors, such as insurance status

and race, and some clinical factors, such as coma and shock, *may* reflect a patient's health at admission. Alternatively, they *may* be associated with the quality of care that the patient received or events that happened after admission. Factors that reflect quality of care should not be included in risk-adjustment models, because they are at least partially under the hospital's control.

The first model, called "Model A", is more conservative because the demographic and clinical risk factors it contains almost certainly were present when the patient entered the hospital and reflect his or her health at admission. The second model, called "Model B", is more comprehensive because it contains all of the risk factors in Model A as well as others that may be associated with *either* health at admission *or* quality of care. For example, patients without insurance may be sicker than insured patients when they enter the hospital. On the other hand, resource constraints associated with caring for uninsured patients may lead to worse care.

One cannot say whether one model is better than the other. Model A accounts only for differences in patient characteristics, not differences in the quality of care. Model B accounts for more of the variation in mortality across hospitals but may also provide for a weaker analysis of quality of care. To the extent that both models give similar results, one can be more confident of those results.

Most Important Risk Factors in Both Models

Age
Sex
Type of heart attack
Chronic diseases, such as
 Liver disease
 Kidney disease
 Heart disease
 Neurologic disease
Cancer
Diabetes

Outcome Rates

The risk-adjustment models described above were used to estimate each patient's probability of death. The actual number of deaths at each hospital was then compared to the expected number of deaths derived by adding

these probabilities. The results are shown in the table in Section Six, "Comparing Observed to Expected Mortality". Risk-adjusted mortality rates were also estimated for each hospital, so that the performance of each hospital could be evaluated alongside that of other hospitals in the same community. The results are shown in Section Seven, "Comparing Hospital Rates to the Statewide Rate".

Statewide Frequencies

Year	Number of patients	Number of deaths	Death rate
1991	38,155	5,751	15.1%
1992	40,169	5,811	14.5%
1993	37,850	5,272	13.9%
TOTAL	116,174	16,834	14.5%

Section

4

Interpreting the Results

Quality of care is one reason a hospital's heart attack mortality rate may be unusually high or unusually low. It is important to understand the other three factors that may contribute to an individual hospital's results.

Unmeasured Risk

As mentioned earlier, the data reported to the State does not permit identification of all risk factors. For example, some hospitals treat a large percentage of patients who do not wish to be resuscitated if cardiac arrest should occur. Other hospitals may have few of these patients. Information on resuscitation status is not currently in the California data base, so it cannot be used as a risk factor. Therefore, if a hospital has an unusually large percentage of Do Not Resuscitate (DNR) patients, its risk-adjusted death rate may be too high when compared with a hospital that has very few DNR patients.

Variations in Reporting

Variations in reporting practices could cause a hospital to appear better than it really is or worse than it really is. Hospitals that neglect to report important risk factors could have risk-adjusted mortality rates that are too high. However, the heart attack validation study published in 1996 showed that differences in hospital reporting practices explain little of the variation in risk-adjusted mortality. Nevertheless this may be a problem for a few individual hospitals.

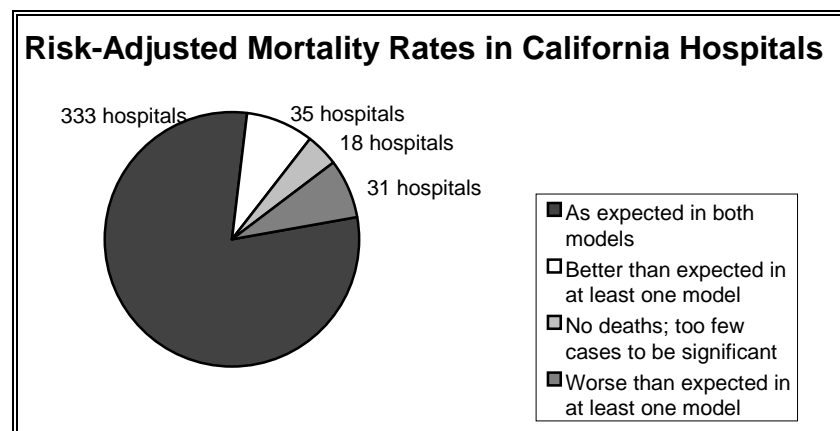
Chance

Chance is important to consider because no matter how careful the study, the results may have occurred randomly, particularly in hospitals with relatively few cases. For example, five coin tosses resulting in four heads and one tail (80 percent heads) is quite possible. Five hundred coin tosses resulting in four hundred heads (80 percent heads) is quite improbable. Statistical methods can compute how probable such an outcome would be. Researchers must decide where to draw the line between findings that should and should not be attributed to chance. A finding is called "statistically significant" when the probability of it being explained by chance is so low that the researcher is willing to risk incorrectly labeling the finding as true.

Statistical significance is measured in p-values. The p-value of 0.01 used in this report means that one time in 100 a hospital may be classified as an outlier due to chance alone.

Quality of Care

Finally, hospitals designated as having better or worse than expected outcomes in the table beginning on page 16 may provide better or worse quality of care than those not so designated. The process of care was not evaluated in this study, so the specific practices that may account for the performance of these facilities are not known. However, the validation study (published in 1996) identified several potential differences between hospitals with low risk-adjusted mortality and those with high risk-adjusted mortality. These include differences in the use of invasive treatments, such as angioplasty and coronary bypass surgery, and certain medications, such as heparin and aspirin.



Mortality Results

Hospital results have been summarized in two tables. The first table, beginning on page 16, shows which hospitals have mortality rates significantly better or worse than expected. The second table, beginning on page 47, compares each hospital's overall risk-adjusted mortality rate with the statewide rate. Hospitals are listed alphabetically by county in both tables. If you cannot find a particular hospital, it is possible that the hospital does not treat heart attack patients or that it is listed under another name.

Comparing Observed and Expected Mortality

Overall Results

- ★ Significantly better than expected ($p < 0.01$)
- ☑ No deaths reported; too few cases for statistical significance
- Not significantly different than expected
- Significantly worse than expected ($p < 0.01$)

These symbols represent the four categories of overall results for 1991 through 1993. Hospitals having mortality rates significantly lower (better) than expected ($p < .01$), based on the characteristics of their patients, are represented by a bold star (★). Hospitals having mortality rates significantly higher (worse) than expected ($p < .01$) are represented by a solid circle (●). All other hospitals are in the middle category.

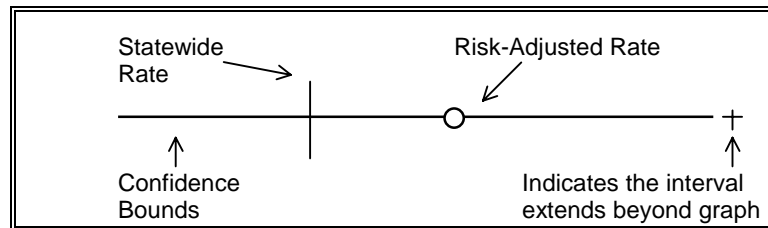
A special symbol (☑) represents hospitals that had no deaths during these three years, but treated too few heart attack cases to be classified as significantly better than expected.

Some hospitals were excluded for all three years of the study because of limitations in the data they reported to OSHPD. Those hospitals are shown with the symbol ✕. Chapter Six in the *Technical Guide* gives more detail about the hospitals that were excluded.

Hospitals that submitted comment letters are designated by the symbol ‡. Those letters are published in an accompanying volume, *Hospital Comment Letters*. It is important to read these letters so that hospital results can be more completely understood.

Comparing Risk-Adjusted Rates with the Statewide Death Rate

Another way of evaluating a hospital is by comparing its risk-adjusted death rate to the statewide rate. The second table, which is a graphical representation of each hospital's aggregate risk-adjusted death rate, allows us to do that. The vertical line represents the statewide average. The circle on the horizontal bar is the hospital's risk-adjusted mortality rate. The bar represents the 98 percent confidence bounds surrounding that mortality rate. This means that there is a 98 percent probability the hospital's true risk-adjusted mortality rate falls somewhere on that bar. Therefore, if the bar crosses the state average, the hospital's overall results are not significantly different from the state average. In general, the more cases a hospital treats, the smaller the confidence bounds surrounding its risk-adjusted rate.



Additional Sources of Information About Quality

The Joint Commission on Accreditation of
Health Care Organizations
One Renaissance Boulevard
Oakbrook Terrace, IL 60181
(630) 792-5000
www.jcaho.org

Accredits hospitals that meet specific
standards

California Department of Corporations
980 9th Street
Sacramento, CA 95814
1-800-400-0815
www.corp.ca.gov

Licenses HMOs that meet specific
standards

Pacific Business Group on Health
33 Montgomery Street, Suite 450
San Francisco, CA 94105
(415) 281-8660
www.healthscope.org

Works to improve the quality of health care
for its 2.5 million represented employees,
dependents, and retirees

California Public Employees Retirement
System
400 P Street
Sacramento, CA 95814
(916) 326-3000
www.calpers.ca.gov

Publishes a report card on health plans

National Committee on Quality Assurance
1350 New York Avenue, NW Suite 700
Washington, DC 20005
(202) 628-5788
www.ncqa.org

Accredits health plans that meet specific
standards

Bay Area Consumers CHECKBOOK
52 Sylvan Way
Oakland, CA 94610
(510) 397-8305

Rates the quality and prices of local service
firms ranging from auto repair shops to
hospitals

Report on Heart Attack, 1997	Model A	Model B
Alameda County		
Alameda County Medical Ctr-Fairmont Campus	<input type="checkbox"/>	<input type="checkbox"/>
Alameda County Medical Ctr-Highland Campus	<input type="checkbox"/>	★
Alameda Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Alta Bates Medical Center-Ashby Campus	★	★
Columbia San Leandro Hospital	●	<input type="checkbox"/>
Eden Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Hayward‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Oakland Campus‡	<input type="checkbox"/>	<input type="checkbox"/>
St. Rose Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Summit Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Valley Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Vencor Hospital-San Leandro	<input type="checkbox"/>	<input type="checkbox"/>
Washington Hospital	★	★

★

Significantly better than expected (p<0.01)

☑

No deaths reported; too few cases for statistical significance

☐

Not significantly different than expected

●

Significantly worse than expected (p<0.01)

×

Hospital excluded due to data limitations

‡

Comment letter received from hospital or hospital system

Amador County

Sutter Amador Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Butte County

Biggs Gridley Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Chico Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Enloe Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Feather River Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Oroville Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Calaveras County

Mark Twain St. Joseph's Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Colusa County

Colusa Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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- | | |
|--|--|
| <input checked="" type="checkbox"/> Significantly better than expected (p<0.01) | <input checked="" type="checkbox"/> Significantly worse than expected (p<0.01) |
| <input checked="" type="checkbox"/> No deaths reported; too few cases for statistical significance | <input checked="" type="checkbox"/> Hospital excluded due to data limitations |
| <input type="checkbox"/> Not significantly different than expected | <input checked="" type="checkbox"/> Comment letter received from hospital or hospital system |

Contra Costa County

Contra Costa Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Doctors Medical Center, Pinole Campus‡	<input type="checkbox"/>	●
Doctors Medical Center, San Pablo Campus	★	★
John Muir Medical Center	★	★
Kaiser Foundation Hospital-Martinez‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Richmond‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Walnut Creek‡	★	<input type="checkbox"/>
Los Medanos Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Mt. Diablo Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
San Ramon Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Delta Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

Del Norte County

Sutter Coast Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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El Dorado County

Barton Memorial Hospital	★	★
Marshall Hospital	<input type="checkbox"/>	<input type="checkbox"/>

- ★

Significantly better than expected (p<0.01)
- ☑

No deaths reported; too few cases for statistical significance
- ☐

Not significantly different than expected
- Significantly worse than expected (p<0.01)
- ×

Hospital excluded due to data limitations
- ‡

Comment letter received from hospital or hospital system

Fresno County

Clovis Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Coalinga Regional Medical Center	x	x
Fresno Community Hospital and Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kingsburg District Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sanger General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Selma District Hospital‡	x	x
Sierra Hospital-Fresno	<input type="checkbox"/>	<input type="checkbox"/>
Sierra Kings Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Agnes Medical Center‡	<input type="checkbox"/>	●
University Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

Glenn County

Glenn Medical Center	x	x
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Humboldt County

General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Mad River Community Hospital‡	<input type="checkbox"/>	●
Redwood Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
So. Humboldt Community Hospital District	<input type="checkbox"/>	<input type="checkbox"/>
St. Joseph Hospital-Eureka	<input type="checkbox"/>	<input type="checkbox"/>

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- Significantly worse than expected ($p < 0.01$)
 x Hospital excluded due to data limitations
 ‡ Comment letter received from hospital or hospital system

Imperial County		
Calexico Hospital	<input type="checkbox"/>	<input type="checkbox"/>
El Centro Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Pioneers Memorial Hospital	●	<input type="checkbox"/>
Inyo County		
Northern Inyo Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Southern Inyo Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Kern County		
Bakersfield Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Delano Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Good Samaritan Hospital-Bakersfield	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Kern Medical Center	●	<input type="checkbox"/>
Kern Valley Hospital District	<input type="checkbox"/>	<input type="checkbox"/>
Mercy Hospital-Bakersfield	<input type="checkbox"/>	<input type="checkbox"/>
Ridgecrest Community Hospital‡	<input type="checkbox"/>	●
San Joaquin Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Tehachapi Hospital	<input type="checkbox"/>	<input type="checkbox"/>
West Side District Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- ⊕

Significantly better than expected (p<0.01)
- ☑

No deaths reported; too few cases for statistical significance
- ☐

Not significantly different than expected
- Significantly worse than expected (p<0.01)
- ×

Hospital excluded due to data limitations
- ‡

Comment letter received from hospital or hospital system

Kings County

Avenal District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Central Valley General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Corcoran District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Hanford Community Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

Lake County

Redbud Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Lakeside Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Lassen County

Lassen Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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- ☒ Significantly better than expected (p<0.01)

☒ No deaths reported; too few cases for statistical significance

☐ Not significantly different than expected
- ☐ Significantly worse than expected (p<0.01)

☐ Hospital excluded due to data limitations

☐ Comment letter received from hospital or hospital system

Los Angeles County		
Alhambra Hospital‡	●	●
Antelope Valley Hospital	□	□
Avalon Municipal Hospital and Clinic	□	□
Barlow Respiratory Hospital	☑	☑
Bay Harbor Hospital‡	●	●
Bellflower Medical Center	□	□
Bellwood General Hospital	□	□
Beverly Hills Medical Center	□	□
Beverly Hospital	□	□
Brotman Medical Center	□	□
California Hospital Medical Center	□	□
Cedars-Sinai Medical Center	★	★
Centinela Hospital Medical Center	□	□
Century City Hospital	□	□
Cigna Hospital of Los Angeles	□	□
Citrus Valley Med Ctr, Inter-Community Campus	□	□
Citrus Valley Med Ctr, Queen of the Valley Campus	□	□
City of Hope National Medical Center‡	□	□

- ★

Significantly better than expected (p<0.01)
- ☑

No deaths reported; too few cases for statistical significance
- Not significantly different than expected
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- ×

Hospital excluded due to data limitations
- ‡

Comment letter received from hospital or hospital system

Los Angeles County, Continued

Coast Plaza Doctors Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia West Hills Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
Community & Mission Hospitals-Huntington Park	<input type="checkbox"/>	<input type="checkbox"/>
Community Hospital of Gardena	<input type="checkbox"/>	<input type="checkbox"/>
Covina Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Daniel Freeman Marina Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Daniel Freeman Memorial Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Desert Palms Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Doctors Hospital of West Covina	<input type="checkbox"/>	<input type="checkbox"/>
Dominguez Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Downey Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
East Los Angeles Doctors Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Encino Tarzana Regional Medical Center-Encinco	<input type="checkbox"/>	<input type="checkbox"/>
Encino Tarzana Regional Medical Center-Tarzana	<input type="checkbox"/>	<input type="checkbox"/>
Foothill Presbyterian Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Garfield Medical Center‡	●	<input type="checkbox"/>
Glendale Adventist Medical Center	★	★
Glendale Memorial Hospital and Health Center	<input type="checkbox"/>	<input type="checkbox"/>

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Los Angeles County, Continued

Good Samaritan Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Granada Hills Community Hospital	●	<input type="checkbox"/>
Greater El Monte Community Hospital	●	<input type="checkbox"/>
Hawthorne Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Henry Mayo Newhall Memorial Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Hollywood Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Huntington East Valley Hospital‡	●	●
Huntington Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Bellflower‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Harbor City‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Los Angeles‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Panorama City‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-West Los Angeles Med Ctr‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Woodland Hills‡	<input type="checkbox"/>	<input type="checkbox"/>
L.A. Co/Harbor-UCLA Medical Center	x	x
L.A. Co/High Desert Hospital	<input type="checkbox"/>	<input type="checkbox"/>
L.A. Co/Martin Luther King Charles R. Drew Med Ctr	<input type="checkbox"/>	<input type="checkbox"/>
L.A. Co/Olive View-UCLA Medical Center	x	x

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Los Angeles County, Continued

L.A. Co/Rancho Los Amigos Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L.A. Co/USC Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Lakewood Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Lancaster Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Lincoln Hospital Medical Center	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Little Company of Mary Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Long Beach Community Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Long Beach Doctor's Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Long Beach Memorial Medical Center	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Los Angeles Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Los Angeles Community Hospital of Norwalk	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Los Angeles Metropolitan Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Memorial Hospital of Gardena	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Methodist Hospital of Southern California	<input type="checkbox"/>	<input type="checkbox"/>
Midway Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Mission Community Hospital-Panorama	<input type="checkbox"/>	<input type="checkbox"/>
Mission Community Hospital-San Fernando	<input type="checkbox"/>	<input type="checkbox"/>
Mission Hospital	<input type="checkbox"/>	<input type="checkbox"/>

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Los Angeles County, Continued

Monrovia Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Monterey Park Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Motion Picture and Television Fund Hospital	<input type="checkbox"/>	<input type="checkbox"/>
North Hollywood Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Northridge Hospital Med Ctr, Roscoe Boulevard Campus	<input type="checkbox"/>	<input type="checkbox"/>
Northridge Hospital Med Ctr, Sherman Way Campus	<input type="checkbox"/>	<input type="checkbox"/>
Orthopaedic Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Pacific Alliance Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Pacific Hospital of Long Beach	<input type="checkbox"/>	<input type="checkbox"/>
Pacifica Hospital of the Valley	<input type="checkbox"/>	<input type="checkbox"/>
Pico Rivera Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Pioneer Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Pomona Valley Hospital Medical Center‡	●	<input type="checkbox"/>
Presbyterian Intercommunity Hospital	●	<input type="checkbox"/>
Providence Holy Cross Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Providence Saint Joseph Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Queen of Angels-Hollywood Presbyterian Med Ctr	<input type="checkbox"/>	<input type="checkbox"/>
Rio Hondo Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>

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‡ Comment letter received from hospital or hospital system

Los Angeles County, Continued

Robert F. Kennedy Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Salik Health Care Speciality Hospital	<input type="checkbox"/>	<input type="checkbox"/>
San Dimas Community Hospital	●	<input type="checkbox"/>
San Gabriel Valley Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
San Pedro Peninsula Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Santa Marta Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Monica UCLA Medical Center	★	<input type="checkbox"/>
Santa Teresita Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sherman Oaks Hospital & Health Center	<input type="checkbox"/>	<input type="checkbox"/>
South Bay Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Specialty Hospital of Southern California‡	<input type="checkbox"/>	<input type="checkbox"/>
St. Francis Medical Center-Lynwood	<input type="checkbox"/>	<input type="checkbox"/>
St. John's Health Center	<input type="checkbox"/>	★
St. Luke Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Mary Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Vincent Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Suburban Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Temple Community Hospital	★	<input type="checkbox"/>

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Los Angeles County, Continued

Terrace Plaza Medical Center	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Thompson Memorial Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Torrance Memorial Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Tri City Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
UCLA Medical Center	<input type="checkbox"/>	<input checked="" type="checkbox"/>
USC Kenneth Norris Jr. Cancer Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
USC University Hospital‡	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Valley Hospital-Pomona	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Valley Presbyterian Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Verdugo Hills Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Washington Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
West Valley Hospital and Health Center	<input type="checkbox"/>	<input type="checkbox"/>
Westside Hospital	<input type="checkbox"/>	<input type="checkbox"/>
White Memorial Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Whittier Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Woodruff Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

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Madera County

Chowchilla District Memorial Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Madera Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Marin County

Kaiser Foundation Hospital-San Rafael	<input type="checkbox"/>	<input type="checkbox"/>
Marin General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Novato Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Mariposa County

John C. Fremont Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Mendocino County

Frank R. Howard Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Mendocino Coast District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Ukiah Valley Medical Center-Adventist Health	<input type="checkbox"/>	<input type="checkbox"/>

Merced County

Bloss Memorial Healthcare District	<input type="checkbox"/>	<input type="checkbox"/>
Memorial Hospital Los Banos	<input type="checkbox"/>	<input type="checkbox"/>
Mercy Hospital & Health Services‡	<input type="checkbox"/>	●
Sutter Merced Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

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Modoc County		
Modoc Medical Center	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Surprise Valley Healthcare District	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Mono County		
Mammoth Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Monterey County		
Community Hospital of the Monterey Peninsula	<input type="checkbox"/>	<input type="checkbox"/>
George L. Mee Memorial Hospital	x	x
Natividad Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
Salinas Valley Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Napa County		
Nelson Holderman Memorial Ctr (Veterans Home of California)‡	<input type="checkbox"/>	<input type="checkbox"/>
Queen of the Valley Hospital Napa Valley Med Ctr	<input type="checkbox"/>	<input type="checkbox"/>
St. Helena Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Nevada County		
Sierra Nevada Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Tahoe Forest Hospital District	★	<input type="checkbox"/>

★ Significantly better than expected (p<0.01)

☒ No deaths reported; too few cases for statistical significance

☐ Not significantly different than expected

● Significantly worse than expected (p<0.01)

x Hospital excluded due to data limitations

‡ Comment letter received from hospital or hospital system

Orange County

Anaheim General Hospital	<input type="checkbox"/>	●
Anaheim General Hospital-Buena Park Campus	<input type="checkbox"/>	<input type="checkbox"/>
Anaheim Memorial Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Brea Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Chapman Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Coastal Communities Hospital	<input type="checkbox"/>	<input type="checkbox"/>
College Hospital Costa Mesa	<input type="checkbox"/>	<input type="checkbox"/>
Columbia Huntington Beach Hospital and Med Ctr	<input type="checkbox"/>	<input type="checkbox"/>
Columbia San Clemente Hospital Med Ctr	<input type="checkbox"/>	★
Columbia West Anaheim Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Doctors Hospital of Santa Ana	<input type="checkbox"/>	<input type="checkbox"/>
Fountain Valley Regional Hospital and Med Ctr-Fountain Valley	<input type="checkbox"/>	<input type="checkbox"/>
Friendly Hills Regional Medical Center‡	●	●
Garden Grove Hospital and Med Ctr, Tenet Corp.	●	●
Hoag Memorial Hospital Presbyterian	<input type="checkbox"/>	<input type="checkbox"/>
Irvine Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Anaheim‡	<input type="checkbox"/>	<input type="checkbox"/>
La Palma Intercommunity Hospital	<input type="checkbox"/>	<input type="checkbox"/>

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Orange County, Continued

Los Alamitos Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Martin Luther Hospital-Anaheim	<input type="checkbox"/>	<input type="checkbox"/>
Mission Hospital Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Orange Coast Memorial Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Pacifica Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Placentia-Linda Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Saddleback Memorial Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
Santa Ana Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
South Coast Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Joseph Hospital-Orange	<input type="checkbox"/>	<input type="checkbox"/>
St. Jude Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Tustin Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
University of California, Irvine Medical Center	<input type="checkbox"/>	★
Vencor Hospital-Orange Co	<input type="checkbox"/>	<input type="checkbox"/>
Western Medical Center Anaheim‡	<input type="checkbox"/>	<input type="checkbox"/>
Western Medical Center Santa Ana‡	<input type="checkbox"/>	<input type="checkbox"/>

- Significantly better than expected ($p < 0.01$)
☑ No deaths reported; too few cases for statistical significance
□ Not significantly different than expected

- Significantly worse than expected ($p < 0.01$)
× Hospital excluded due to data limitations
‡ Comment letter received from hospital or hospital system

Placer County

Sutter Auburn Faith Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Roseville Medical Center	★	★

Plumas County

Eastern Plumas Healthcare District	☑	☑
Indian Valley Healthcare District	☑	☑
Plumas District Hospital	★	☑
Seneca Hospital	<input type="checkbox"/>	<input type="checkbox"/>

- ★

Significantly better than expected (p<0.01)
- ☑

No deaths reported; too few cases for statistical significance
- ☐

Not significantly different than expected
- Significantly worse than expected (p<0.01)
- ×

Hospital excluded due to data limitations
- ‡

Comment letter received from hospital or hospital system

Riverside County

Corona Regional Rehab Center-Magnolia	<input type="checkbox"/>	<input type="checkbox"/>
Desert Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Eisenhower Memorial Hospital	★	<input type="checkbox"/>
Hemet Valley Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Inland Valley Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
John F. Kennedy Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Riverside‡	<input type="checkbox"/>	●
Lakeside Hospital	☑	☑
Menifee Valley Medical Center	<input type="checkbox"/>	★
Moreno Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Palo Verde Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Parkview Community Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Riverside Community Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Riverside General Hospital University Med Ctr	<input type="checkbox"/>	<input type="checkbox"/>
San Gorgonio Memorial Hospital	<input type="checkbox"/>	●
Sharp Healthcare Murietta	<input type="checkbox"/>	<input type="checkbox"/>

★ Significantly better than expected (p<0.01)

☑ No deaths reported; too few cases for statistical significance

☐ Not significantly different than expected

● Significantly worse than expected (p<0.01)

* Hospital excluded due to data limitations

‡ Comment letter received from hospital or hospital system

Sacramento County

Kaiser Foundation Hospital-Sacramento‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-South Sacramento‡	<input type="checkbox"/>	<input type="checkbox"/>
Mercy American River/Mercy San Juan Hospital, American River Campus‡	<input type="checkbox"/>	<input type="checkbox"/>
Mercy American River/Mercy San Juan Hospital, San Juan Campus‡	★	★
Mercy General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Mercy Hospital of Folsom‡	<input type="checkbox"/>	<input type="checkbox"/>
Methodist Hospital of Sacramento	<input type="checkbox"/>	<input type="checkbox"/>
Sutter General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
U.C. Davis Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

San Benito County

Hazel Hawkins Memorial Hospital-San Benito Healthcare District	<input type="checkbox"/>	<input type="checkbox"/>
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- ★ Significantly better than expected (p<0.01)

☑ No deaths reported; too few cases for statistical
significance

☐ Not significantly different than expected
- Significantly worse than expected (p<0.01)

× Hospital excluded due to data limitations

‡ Comment letter received from hospital
or hospital system

San Bernardino County		
Barstow Community Hospital	x	x
Bear Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia Chino Valley Medical Center	●	●
Community Hospital of San Bernadino	<input type="checkbox"/>	<input type="checkbox"/>
Hi Desert Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Fontana‡	<input type="checkbox"/>	●
Loma Linda University Community Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Loma Linda University Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Mountains Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Needles-Desert Communities Hospital	x	x
Redlands Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
San Antonio Community Hospital	●	<input type="checkbox"/>
San Bernardino County Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Bernardine Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Mary Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
U.S. Family Care Medical Center, Montclair	<input type="checkbox"/>	<input type="checkbox"/>
Vencor Hospital-Ontario	<input type="checkbox"/>	<input type="checkbox"/>
Victor Valley Community Hospital‡	●	●

- Significantly better than expected (p<0.01)
- ☑

 No deaths reported; too few cases for statistical significance
- ☐

 Not significantly different than expected
- Significantly worse than expected (p<0.01)
- x

 Hospital excluded due to data limitations
- ‡

 Comment letter received from hospital or hospital system

San Diego County

Alvarado Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Fallbrook District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Green Hospital of Scripps Clinic	<input type="checkbox"/>	<input type="checkbox"/>
Grossmont Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Harbor View Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-San Diego‡	★	<input type="checkbox"/>
Mercy Hospital & Medical Center-San Diego	<input type="checkbox"/>	<input type="checkbox"/>
Mission Bay Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Palomar Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Paradise Valley Hospital‡	●	<input type="checkbox"/>
Pomerado Hospital	<input type="checkbox"/>	<input type="checkbox"/>
San Diego Physician's and Surgeons Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Scripps Hospital-East County	●	●
Scripps Memorial Hospital-Chula Vista	<input type="checkbox"/>	<input type="checkbox"/>
Scripps Memorial Hospital-Encinitas	<input type="checkbox"/>	★
Scripps Memorial Hospital-La Jolla	<input type="checkbox"/>	<input type="checkbox"/>
Sharp Cabrillo Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sharp Chula Vista Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

- ⊙ Significantly better than expected ($p<0.01$)
- ☑ No deaths reported; too few cases for statistical significance
- ☐ Not significantly different than expected

- Significantly worse than expected ($p<0.01$)
- × Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

San Diego County, Continued

Sharp Coronado Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sharp Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Tri-City Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
UCSD Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
UCSD/Thornton Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Vencor Hospital-San Diego	<input type="checkbox"/>	<input type="checkbox"/>
Villa View Community Hospital	x	x

- ⊕ Significantly better than expected (p<0.01)
- ☑ No deaths reported; too few cases for statistical significance
- ☐ Not significantly different than expected

- Significantly worse than expected (p<0.01)
- * Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

San Francisco County

California Pacific Med Ctr-California Campus	★	★
California Pacific Med Ctr-Pacific Campus	★	★
Chinese Hospital	□	□
Davies Medical Center‡	□	□
Kaiser Foundation Hospital-San Francisco‡	★	□
Med Ctr at the University of Calif San Francisco	□	□
San Francisco General Hospital	□	□
St. Francis Memorial Hospital	□	□
St. Luke's Hospital	×	×
St. Mary's Medical Center	□	□
UCSF/Mt. Zion Medical Center	★	□

- ★ Significantly better than expected ($p<0.01$)
- ☑ No deaths reported; too few cases for statistical significance
- Not significantly different than expected

- Significantly worse than expected ($p<0.01$)
- × Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

San Joaquin County

Dameron Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Doctors Hospital of Manteca	<input type="checkbox"/>	<input type="checkbox"/>
Lodi Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
San Joaquin General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Dominic's Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Josephs Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Tracy Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

San Luis Obispo County

Arroyo Grande Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
French Hospital Medical Center	★	<input type="checkbox"/>
San Luis Obispo County General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sierra Vista Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Twin Cities Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

- ★

Significantly better than expected (p<0.01)
- ☑

No deaths reported; too few cases for statistical significance
- ☐

Not significantly different than expected
- Significantly worse than expected (p<0.01)
- ×

Hospital excluded due to data limitations
- ‡

Comment letter received from hospital or hospital system

San Mateo County

Kaiser Foundation Hospital-Redwood City‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-South San Francisco‡	<input type="checkbox"/>	<input type="checkbox"/>
Mills Health Center	<input type="checkbox"/>	<input type="checkbox"/>
Peninsula Medical Center	<input type="checkbox"/>	★
San Mateo County General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sequoia Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Seton Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Seton Medical Center-Coastside	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Santa Barbara County

Goleta Valley Cottage Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Lompoc Hospital District	<input type="checkbox"/>	<input type="checkbox"/>
Marian Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Santa Barbara Cottage Hospital	★	<input type="checkbox"/>
Santa Ynez Valley Cottage Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Francis Medical Center of Santa Barbara	<input type="checkbox"/>	<input type="checkbox"/>
Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

★ Significantly better than expected (p<0.01)

☑ No deaths reported; too few cases for statistical significance

□ Not significantly different than expected

● Significantly worse than expected (p<0.01)

× Hospital excluded due to data limitations

‡ Comment letter received from hospital or hospital system

Santa Clara County

Alexian Brothers Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia Good Samaritan Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia San Jose Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Columbia South Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Community Hospital of Los Gatos	<input type="checkbox"/>	<input type="checkbox"/>
El Camino Hospital	<input type="checkbox"/>	★
Kaiser Foundation Hospital-Santa Clara‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Santa Teresa Community Hospital‡	●	●
O'Connor Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Clara Valley Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Louise Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Stanford University Hospital	★	★

Santa Cruz County

Dominican Santa Cruz Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Watsonville Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

- ★ Significantly better than expected (p<0.01)

☑ No deaths reported; too few cases for statistical significance

☐ Not significantly different than expected
- Significantly worse than expected (p<0.01)

× Hospital excluded due to data limitations

‡ Comment letter received from hospital or hospital system

Shasta County

Mayers Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Mercy Medical Center-Redding	<input type="checkbox"/>	<input type="checkbox"/>
Redding Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

Siskiyou County

Mercy Medical Center Mt. Shasta	<input type="checkbox"/>	<input type="checkbox"/>
Siskiyou General Hospital	x	x

Solano County

Kaiser Foundation Hospital-Vallejo‡	<input type="checkbox"/>	<input type="checkbox"/>
Northbay Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Solano Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
VacaValley Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>

- ☒ Significantly better than expected (p<0.01)

☒ No deaths reported; too few cases for statistical significance

☐ Not significantly different than expected
- ☐ Significantly worse than expected (p<0.01)

☒ Hospital excluded due to data limitations

☒ Comment letter received from hospital or hospital system

Sonoma County

Columbia Healdsburg General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia Palm Drive Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Santa Rosa‡	★	<input type="checkbox"/>
Petaluma Valley Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Santa Rosa Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sonoma Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Medical Center of Santa Rosa‡	<input type="checkbox"/>	<input type="checkbox"/>
Warrack Medical Center Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Stanislaus County

Del Puerto Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Doctors Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Emanuel Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Memorial Hospital Association	<input type="checkbox"/>	<input type="checkbox"/>
Memorial Hospital Ceres	<input type="checkbox"/>	<input type="checkbox"/>
Oak Valley District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Stanislaus Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

Sutter County

Fremont Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
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★ Significantly better than expected (p<0.01)

☒ No deaths reported; too few cases for statistical significance

☐ Not significantly different than expected

● Significantly worse than expected (p<0.01)

* Hospital excluded due to data limitations

‡ Comment letter received from hospital or hospital system

Tehama County		
St. Elizabeth Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Trinity County		
Trinity Hospital	x	x
Tulare County		
Alta Hospital District	<input type="checkbox"/>	<input type="checkbox"/>
Kaweah Delta Health Care District‡	<input type="checkbox"/>	<input type="checkbox"/>
Lindsay Distric Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Memorial Hospital at Exeter	<input type="checkbox"/>	<input type="checkbox"/>
Sierra View District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Tulare District Healthcare System‡	<input type="checkbox"/>	●
Visalia Community Health Center	<input type="checkbox"/>	<input type="checkbox"/>
Tuolumne County		
Sonora Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Tuolumne General Hospital	<input type="checkbox"/>	<input type="checkbox"/>

- ⊕

Significantly better than expected (p<0.01)
- ☑

No deaths reported; too few cases for statistical significance
- Not significantly different than expected
- Significantly worse than expected (p<0.01)
- x

Hospital excluded due to data limitations
- ‡

Comment letter received from hospital or hospital system

Ventura County

Columbia Los Robles Hospital Medical Center	⊕	<input type="checkbox"/>
Community Memorial Hospital-San Buenaventura	<input type="checkbox"/>	<input type="checkbox"/>
Ojai Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Paula Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Simi Valley Hospital & Health Care Services	<input type="checkbox"/>	<input type="checkbox"/>
St. John's Pleasant Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. John's Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Ventura County Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>

Yolo County

Sutter Davis Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Woodland Healthcare	<input type="checkbox"/>	<input type="checkbox"/>

Yuba County

Rideout Memorial Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
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- ⊕

Significantly better than expected (p<0.01)
- ⊗

No deaths reported; too few cases for statistical significance
- ☐

Not significantly different than expected
- Significantly worse than expected (p<0.01)
- ×

Hospital excluded due to data limitations
- ‡

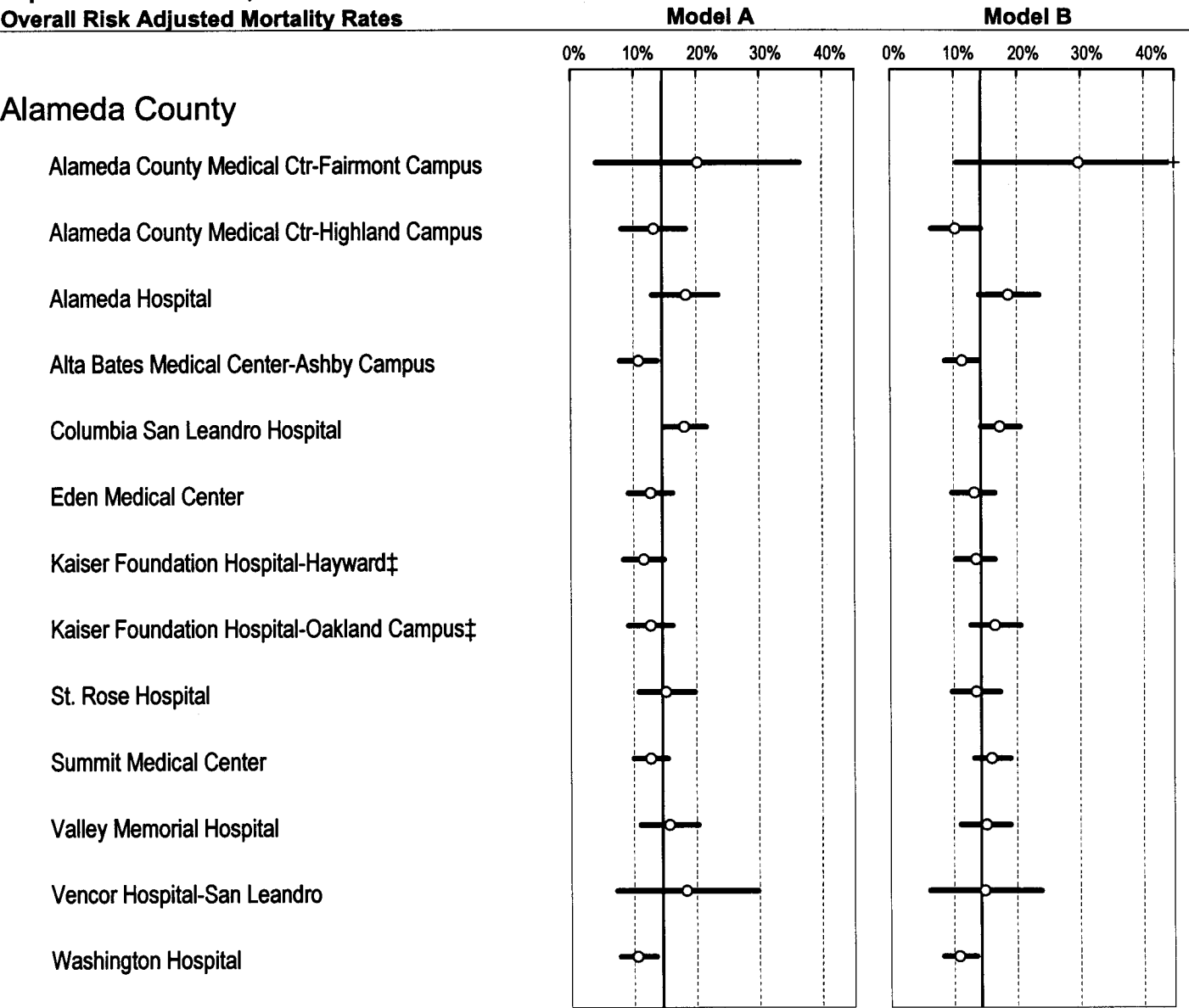
Comment letter received from hospital or hospital system

Section

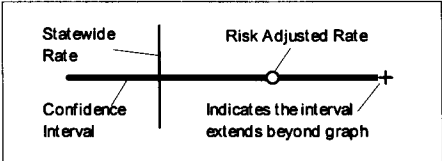
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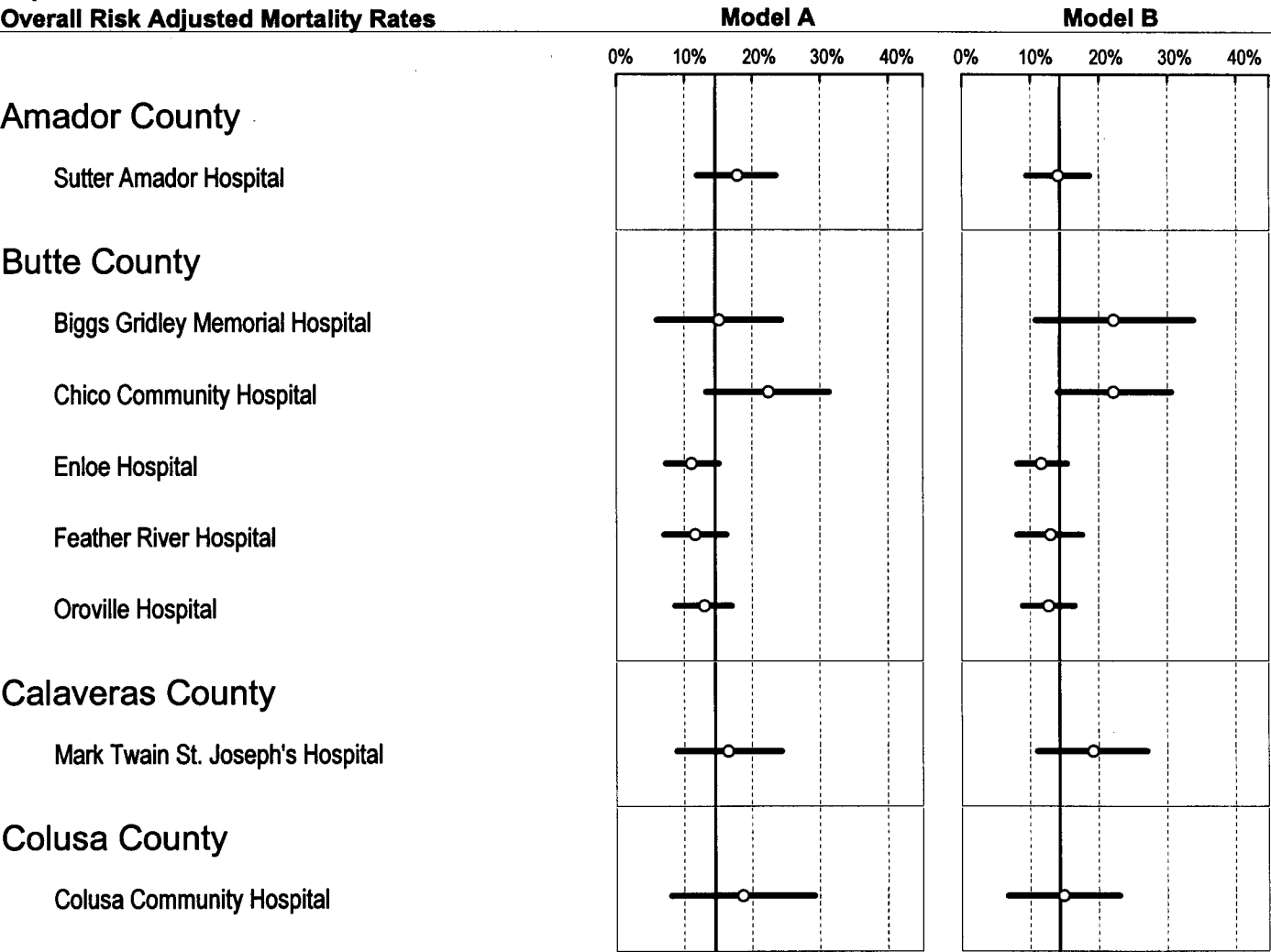
Comparing Hospital Rates to the Statewide Rate

Report on Heart Attack, 1997
 Overall Risk Adjusted Mortality Rates

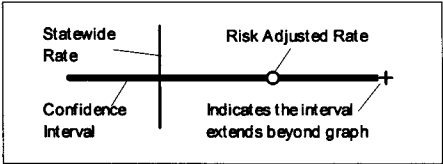


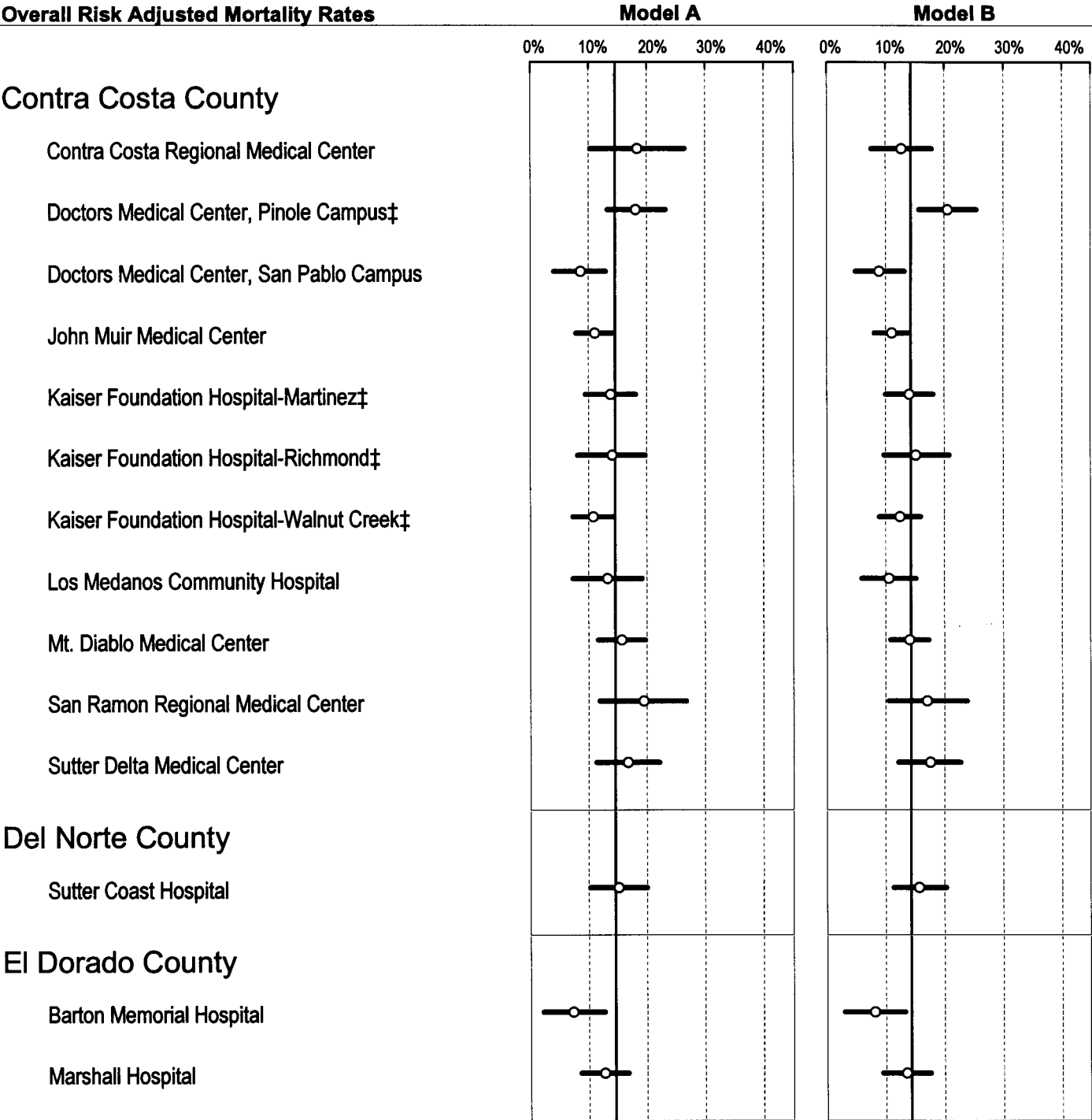
‡ Hospital sent comment letter
 † The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



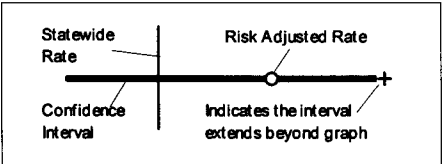


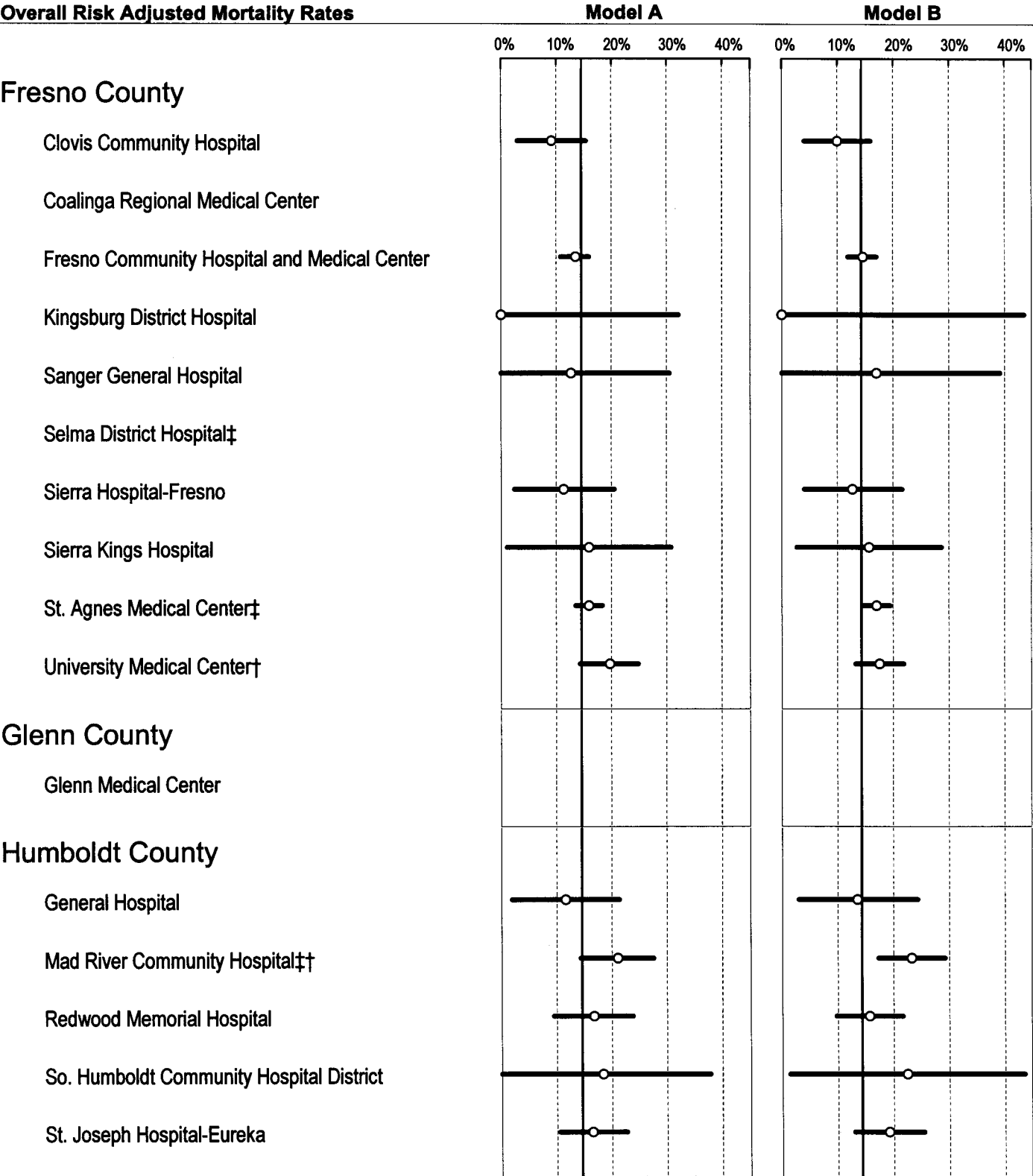
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



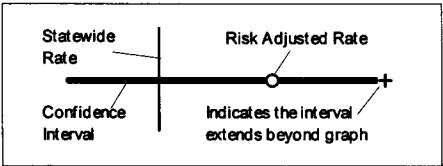


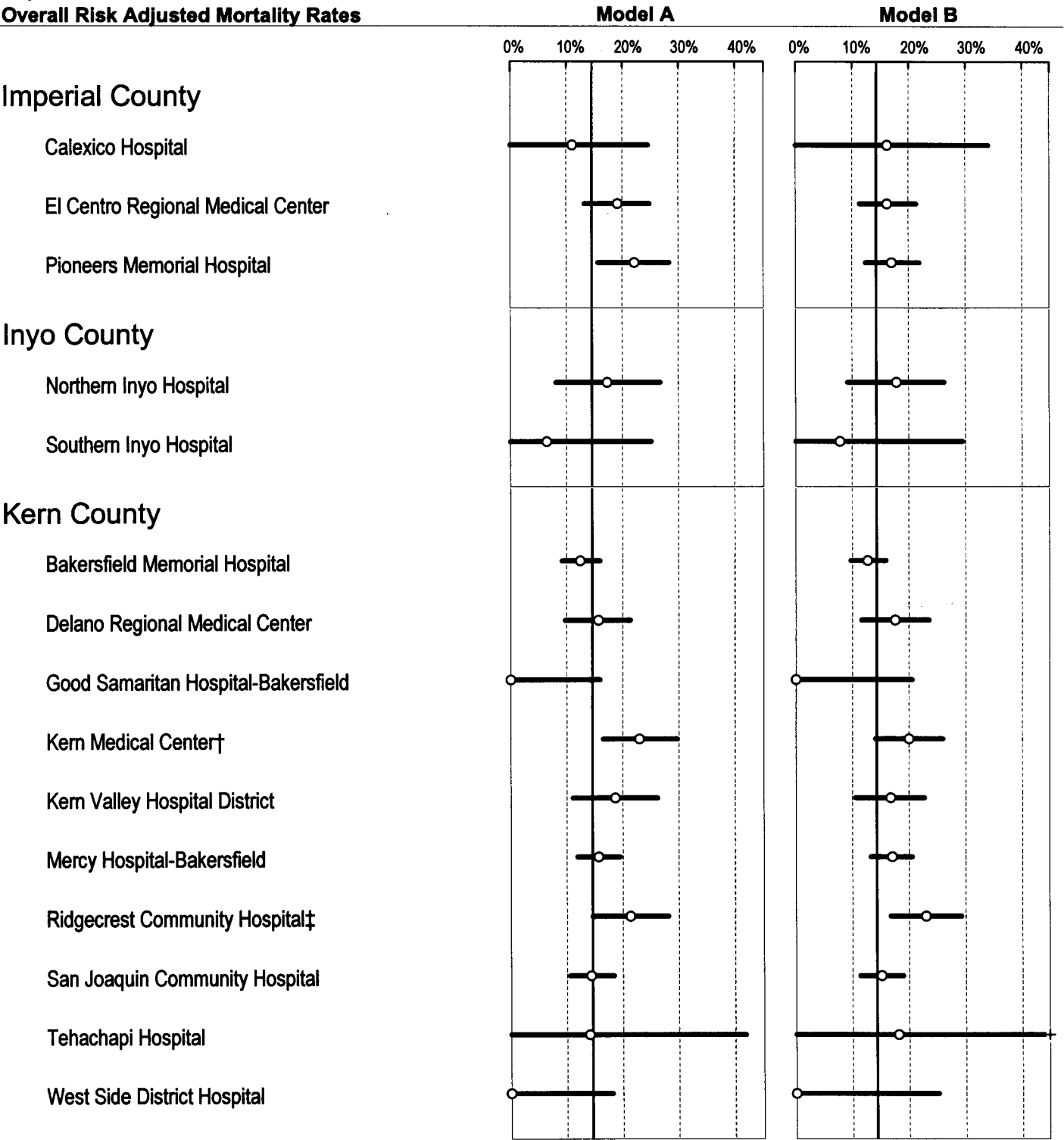
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



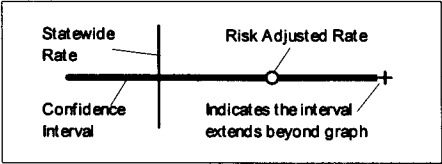


‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.

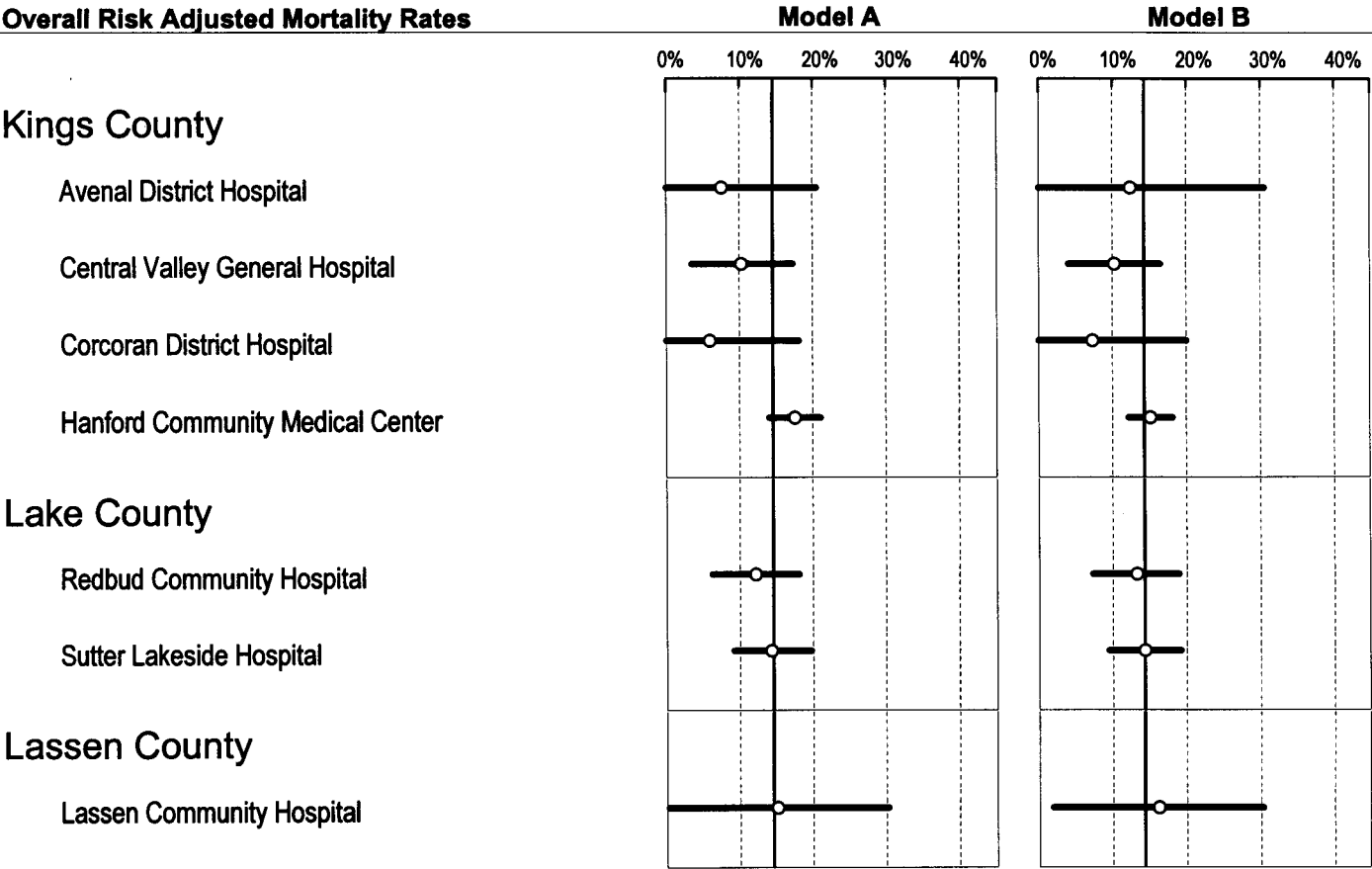




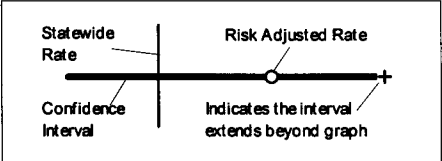
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



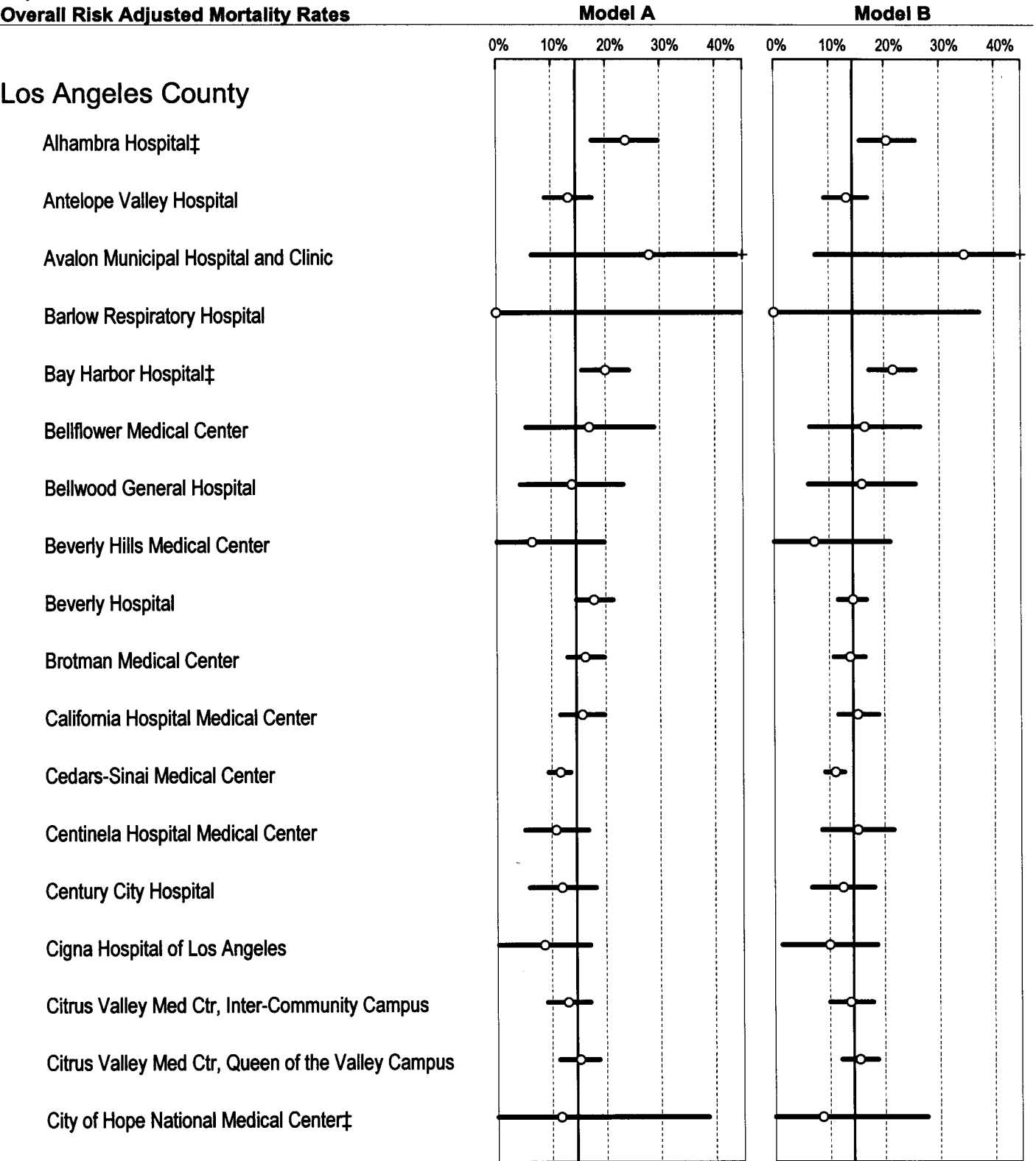
Report on Heart Attack, 1997
Overall Risk Adjusted Mortality Rates



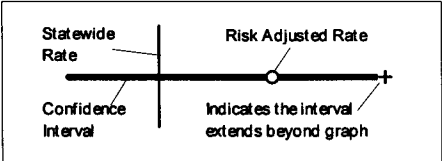
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



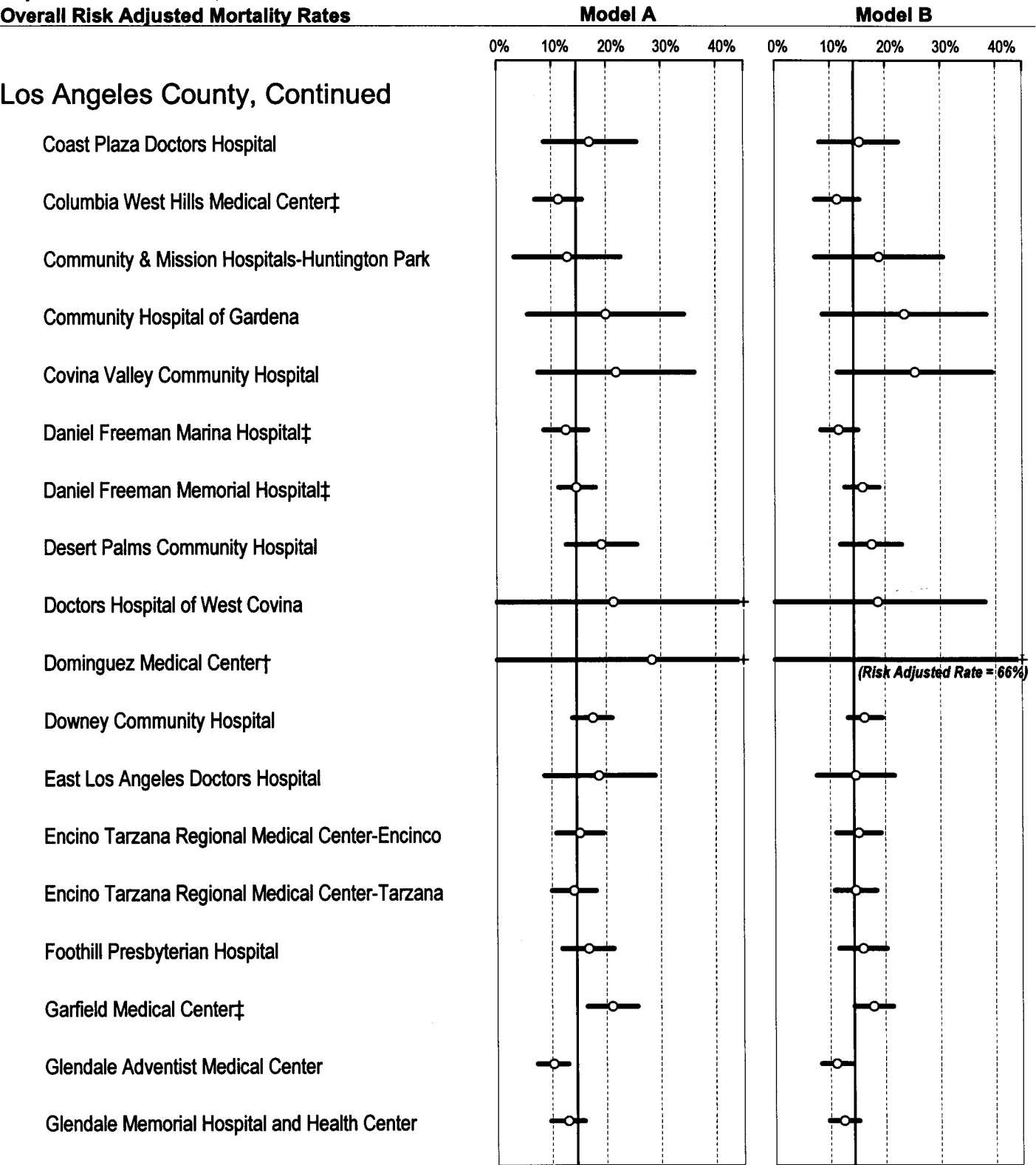
Los Angeles County



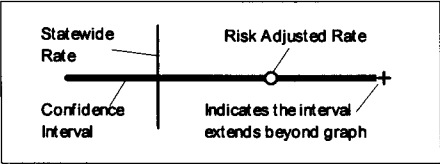
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



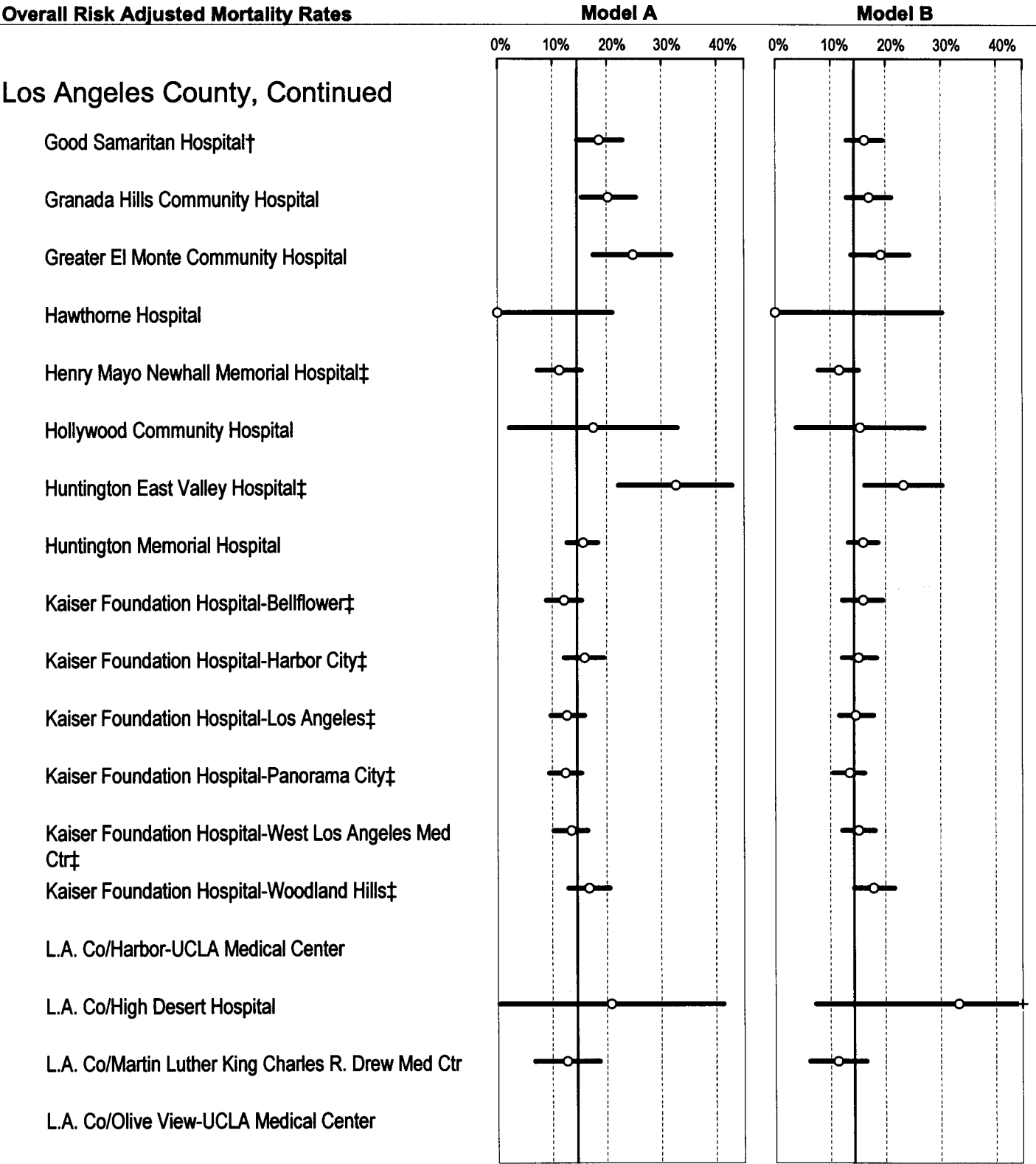
Los Angeles County, Continued



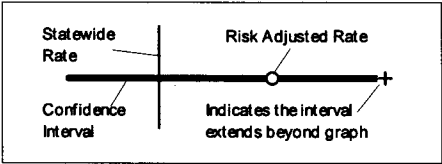
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



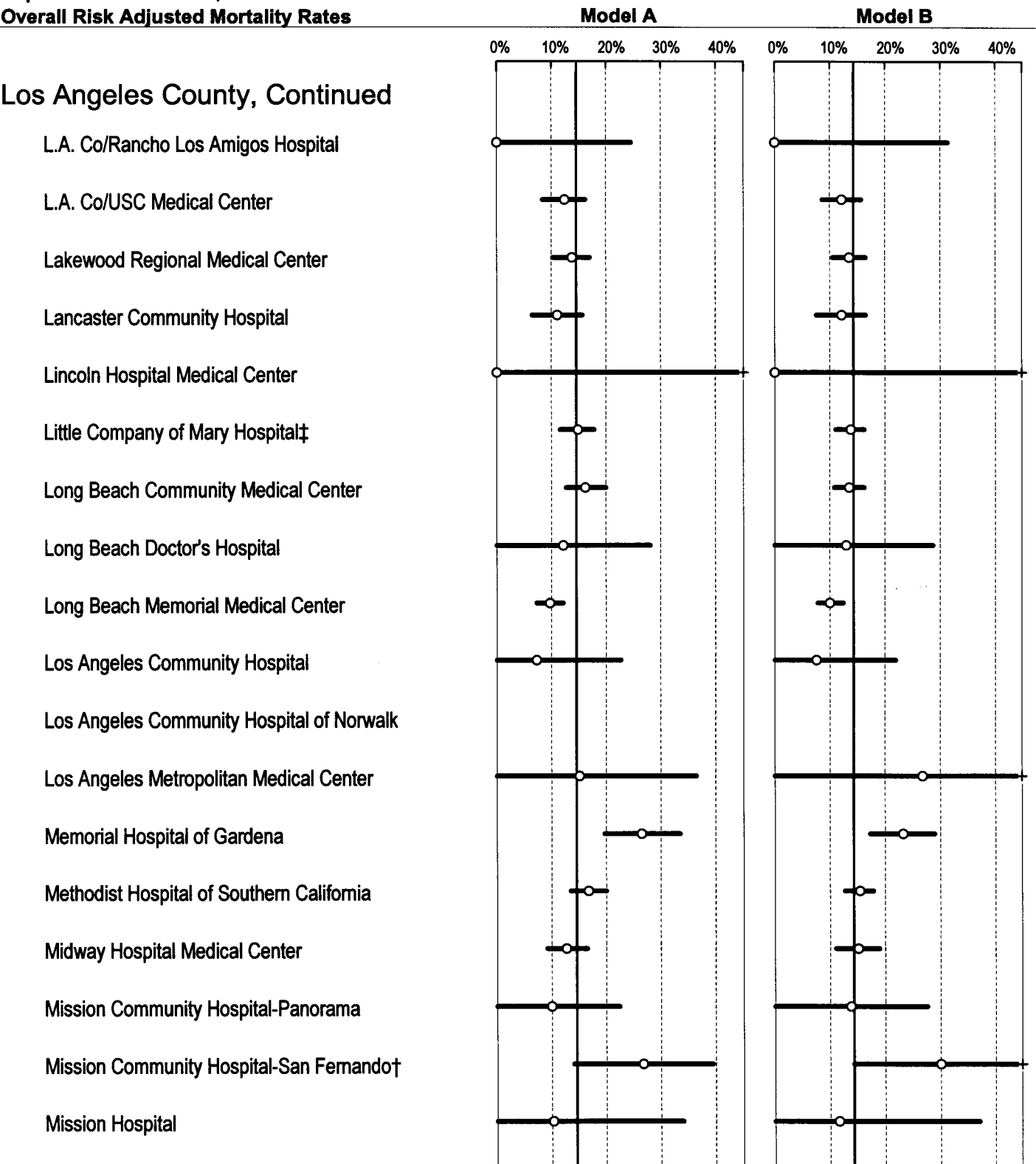
Los Angeles County, Continued



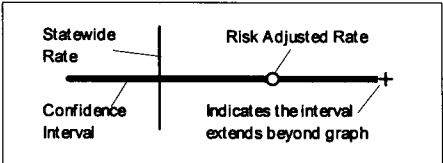
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



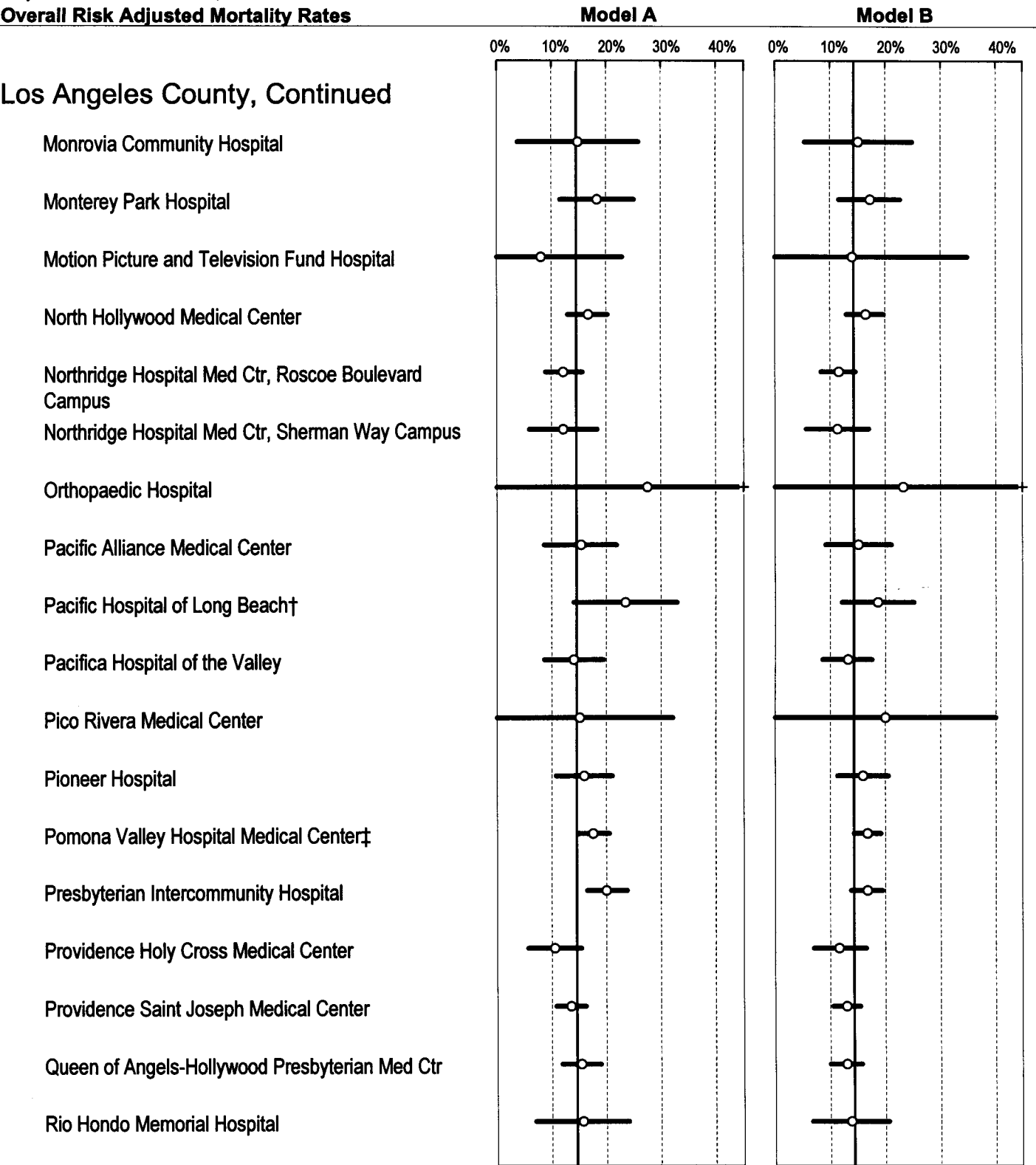
Los Angeles County, Continued



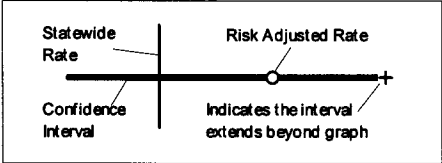
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



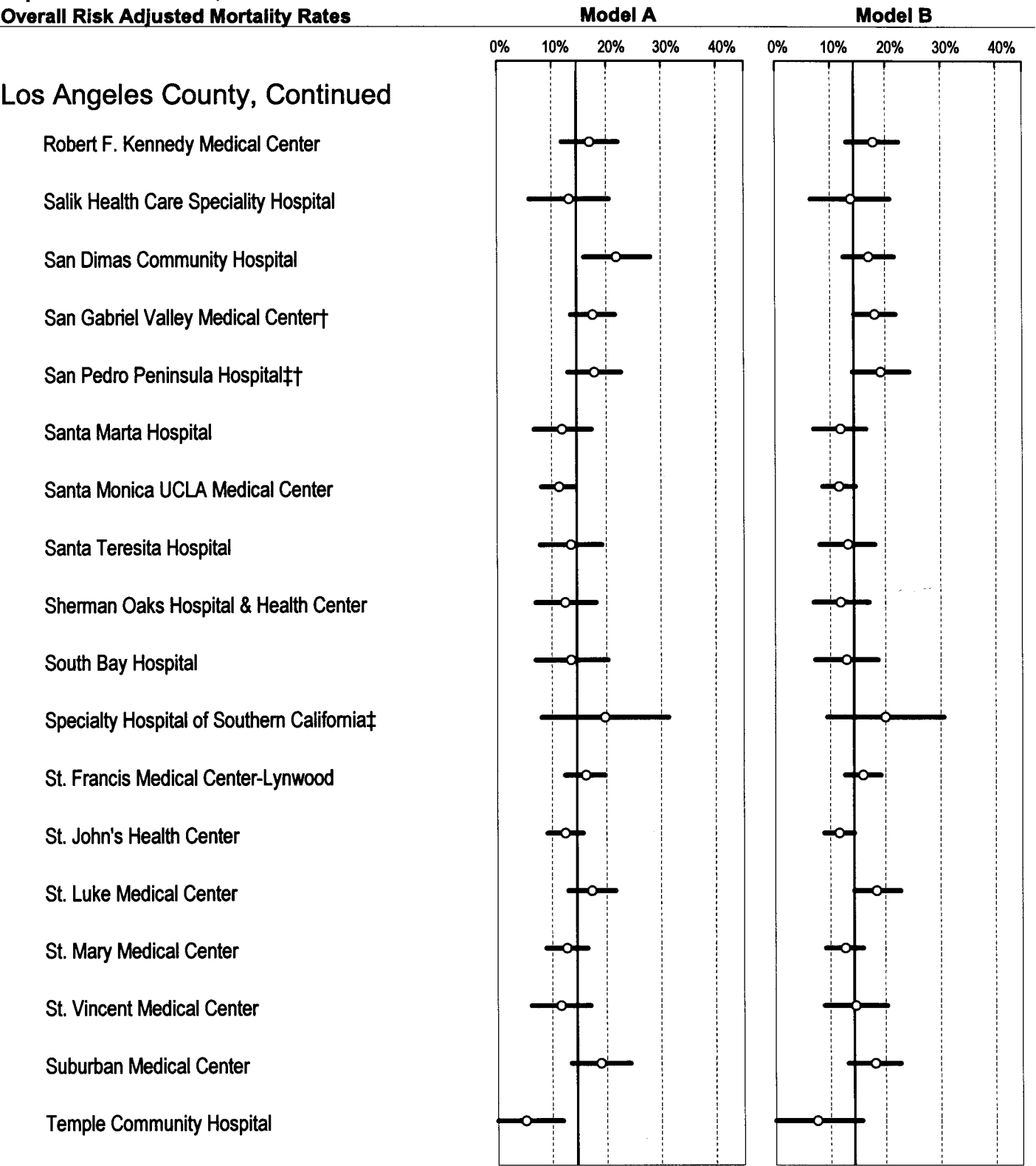
Los Angeles County, Continued



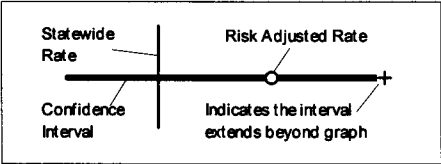
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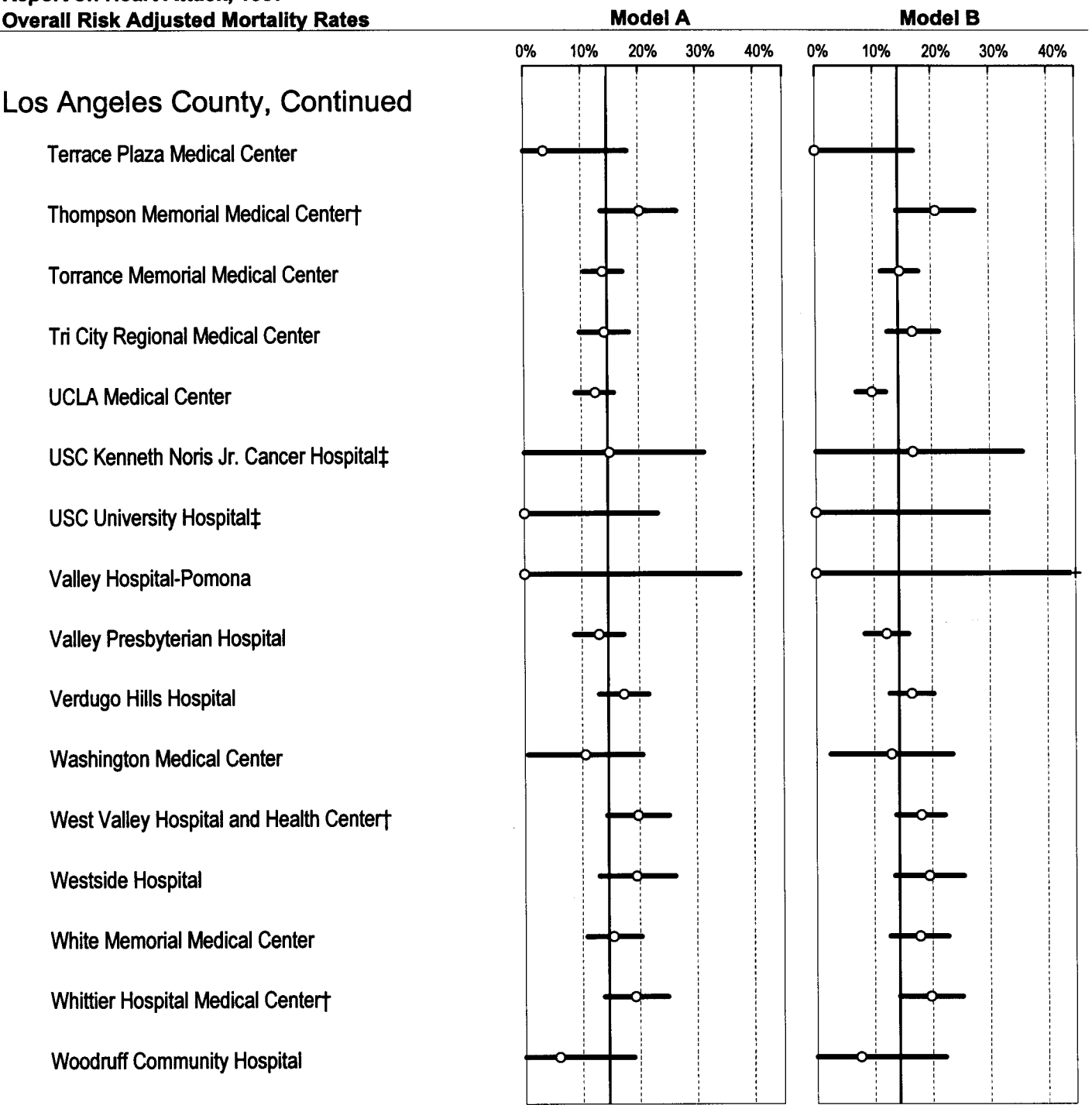
Los Angeles County, Continued



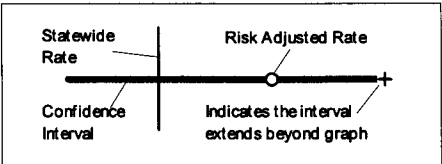
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.

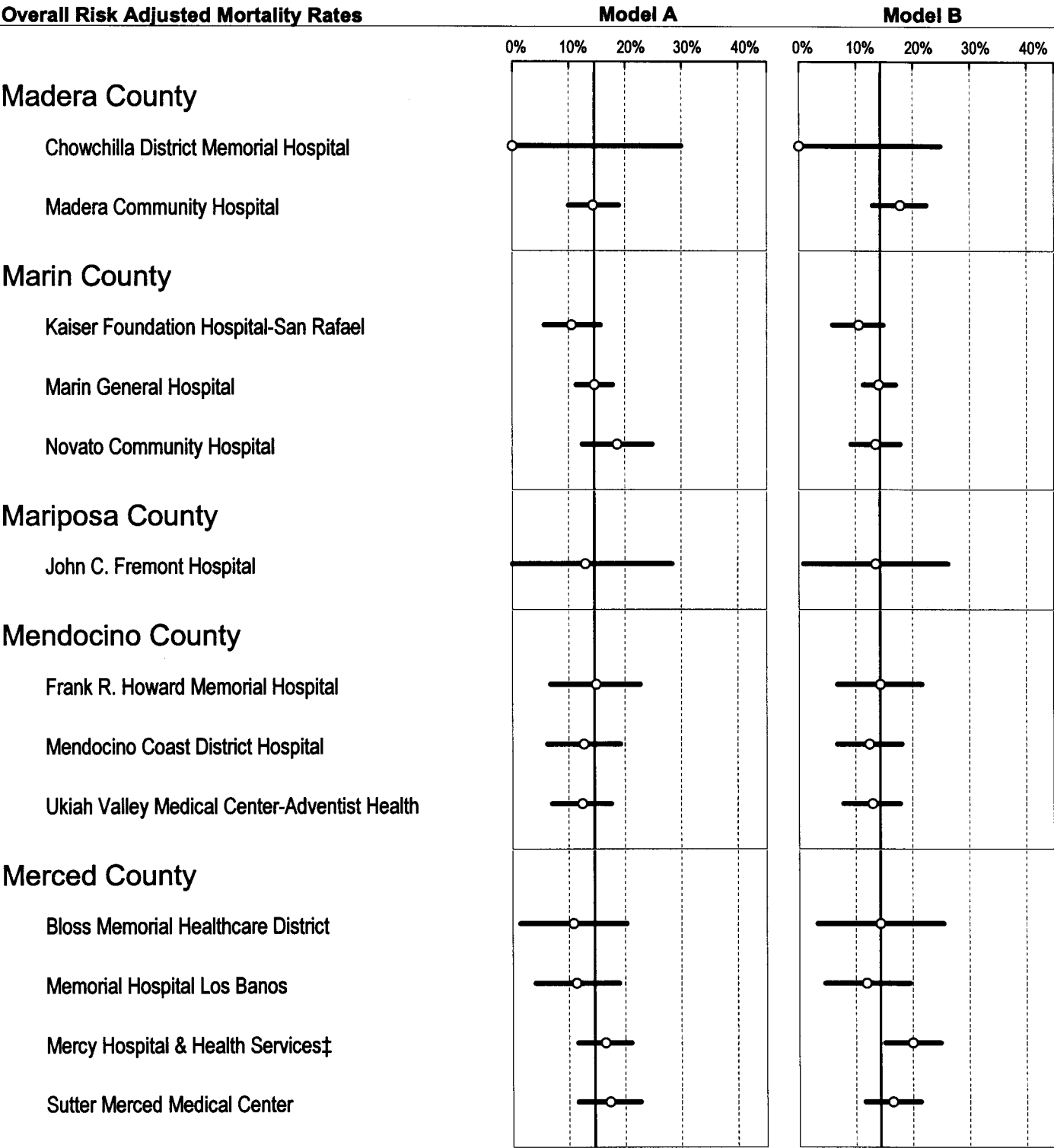


Los Angeles County, Continued

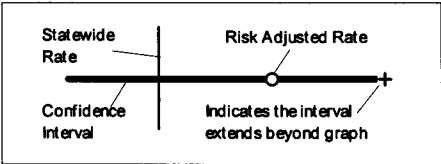


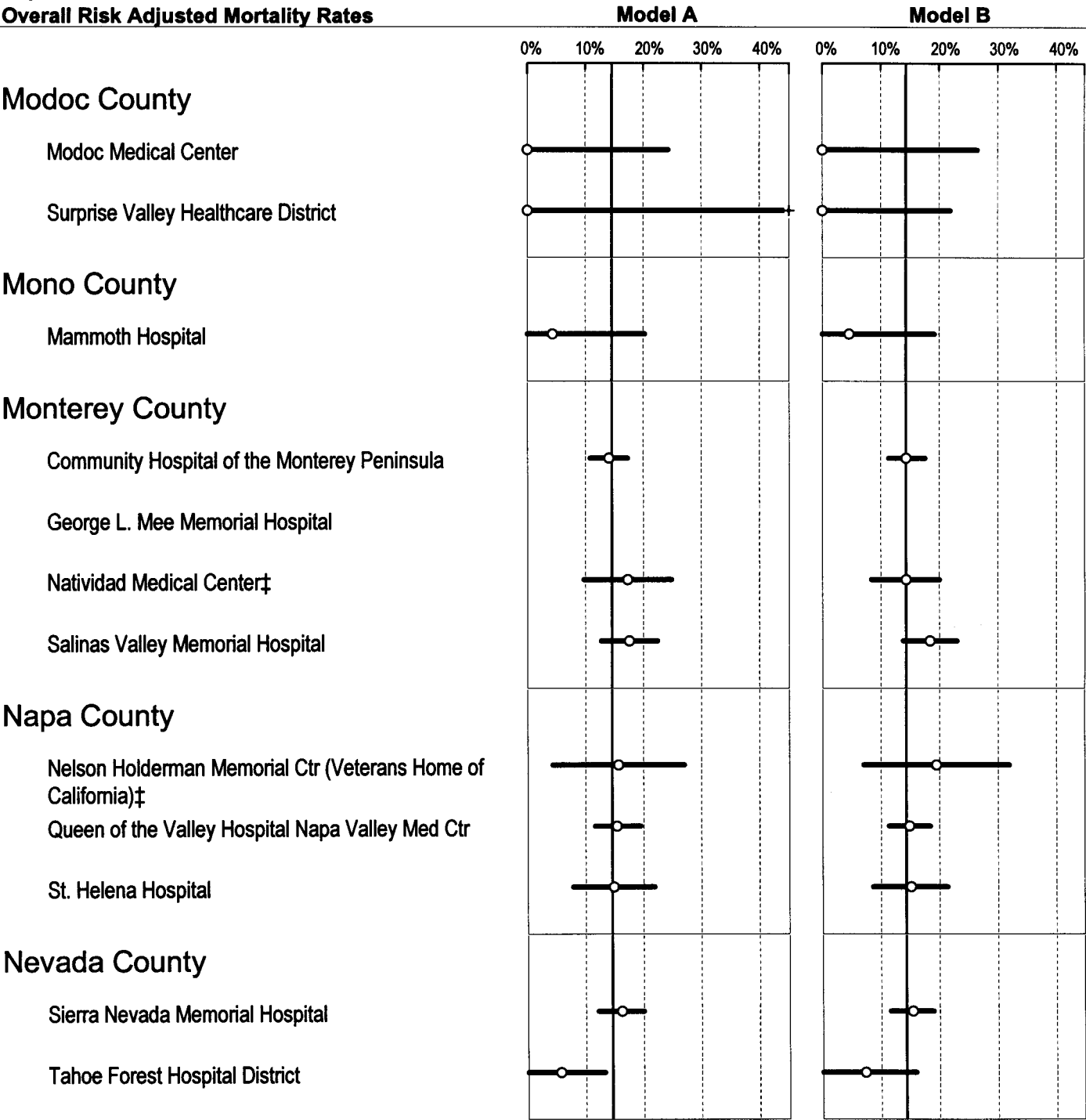
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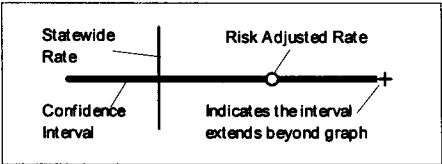


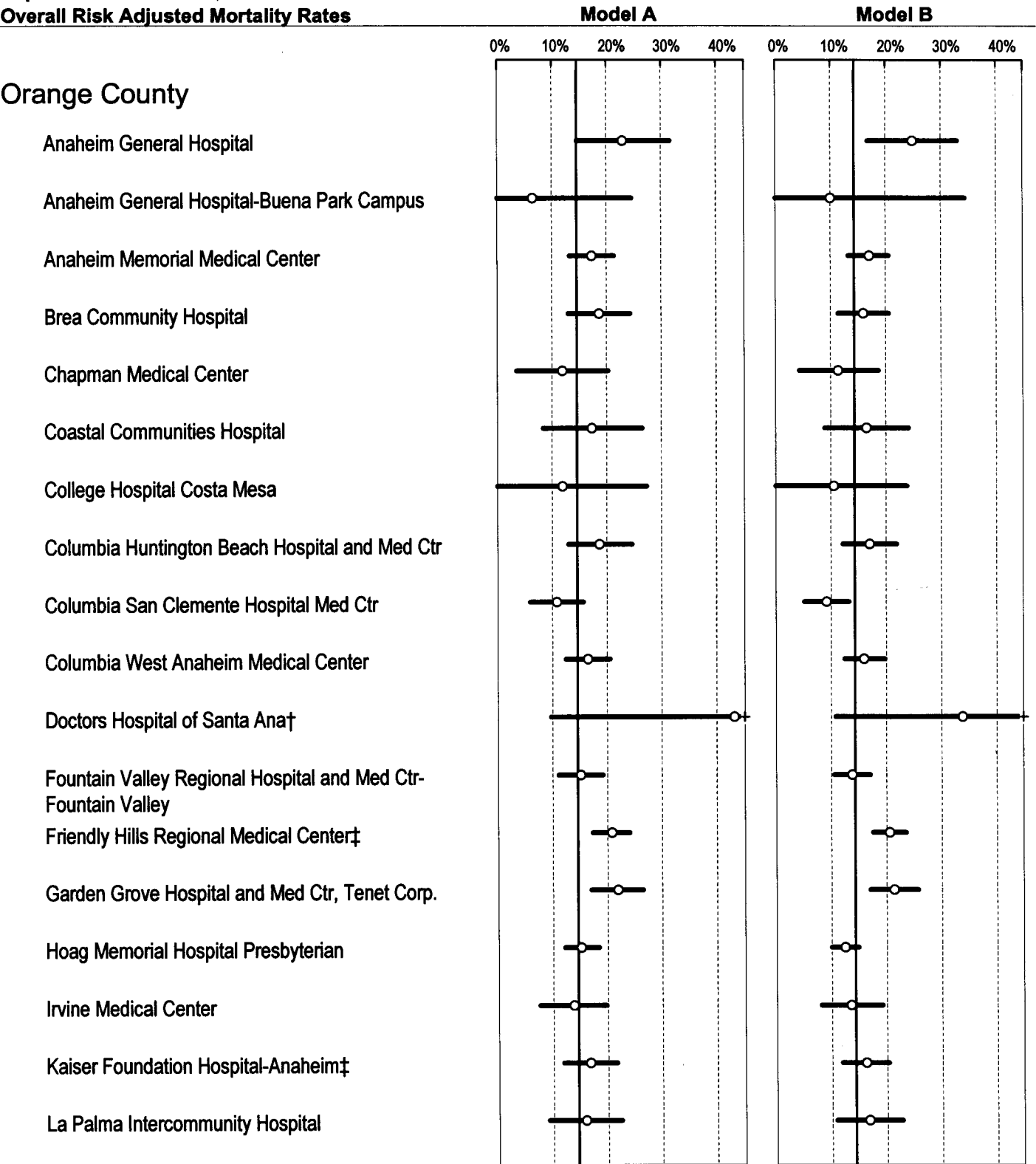
‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.



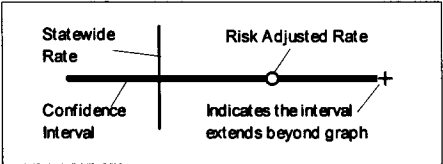


‡ Hospital sent comment letter
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-value shown in the Detailed Statistical Results.

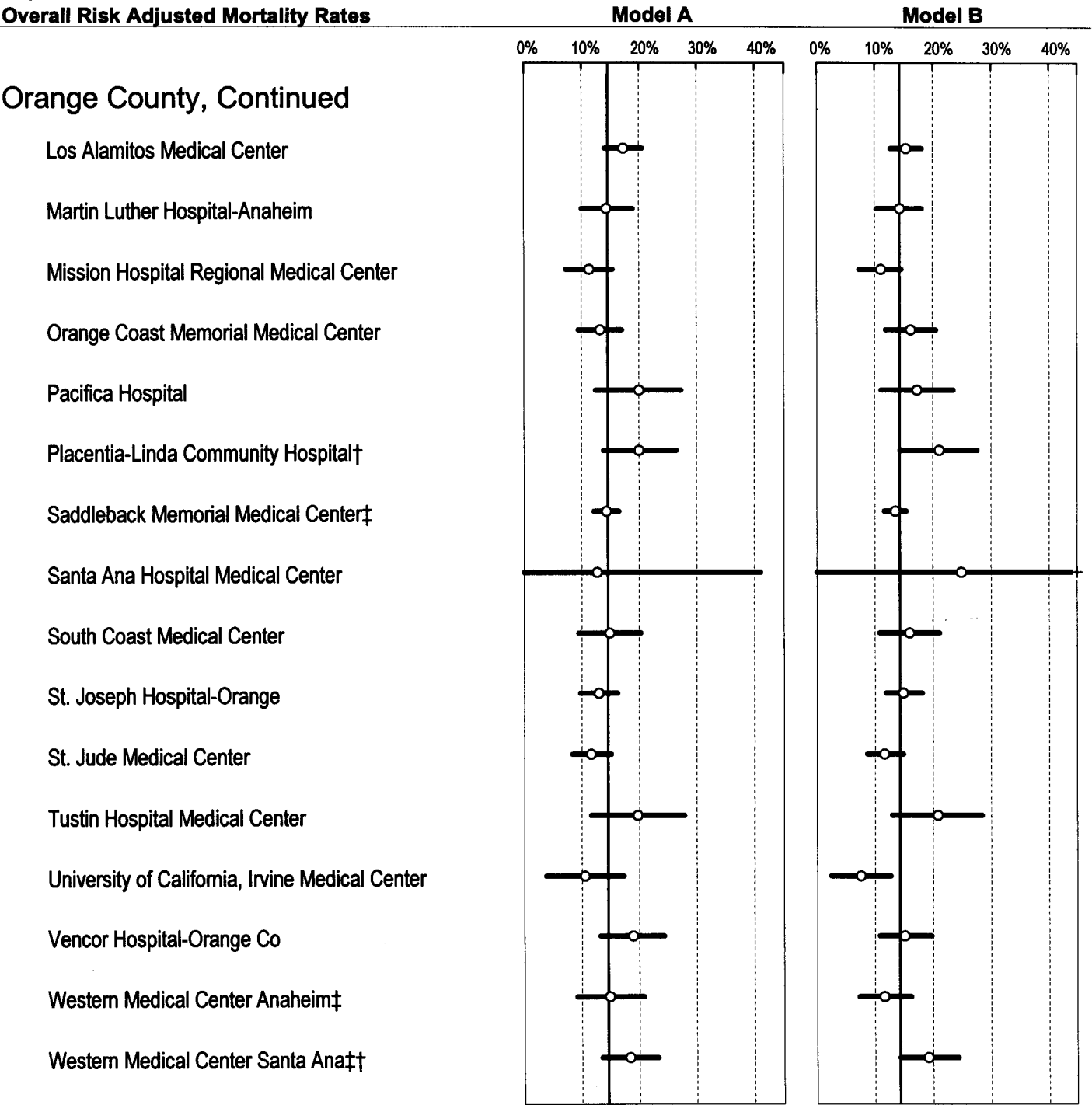




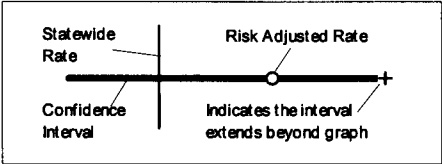
‡ Hospital sent comment letter
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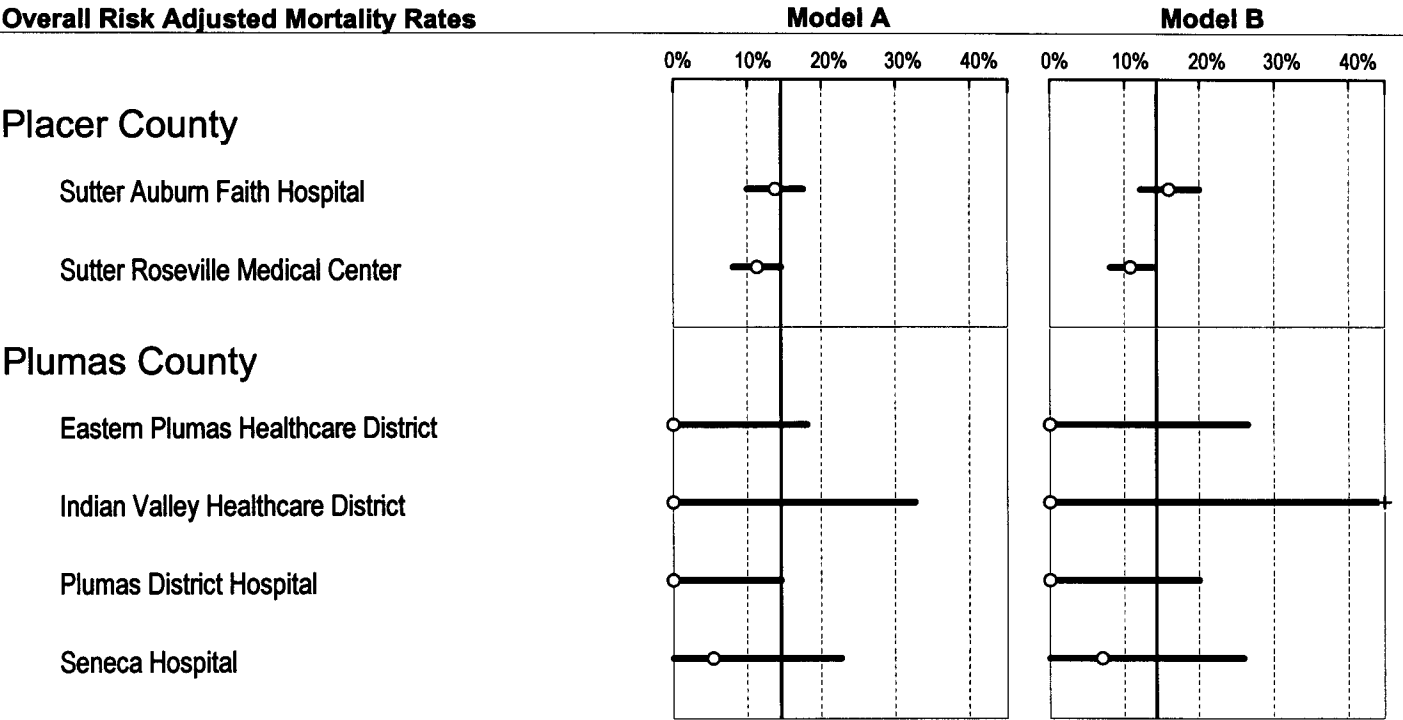


Orange County, Continued

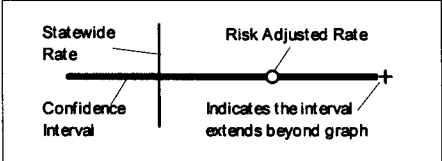


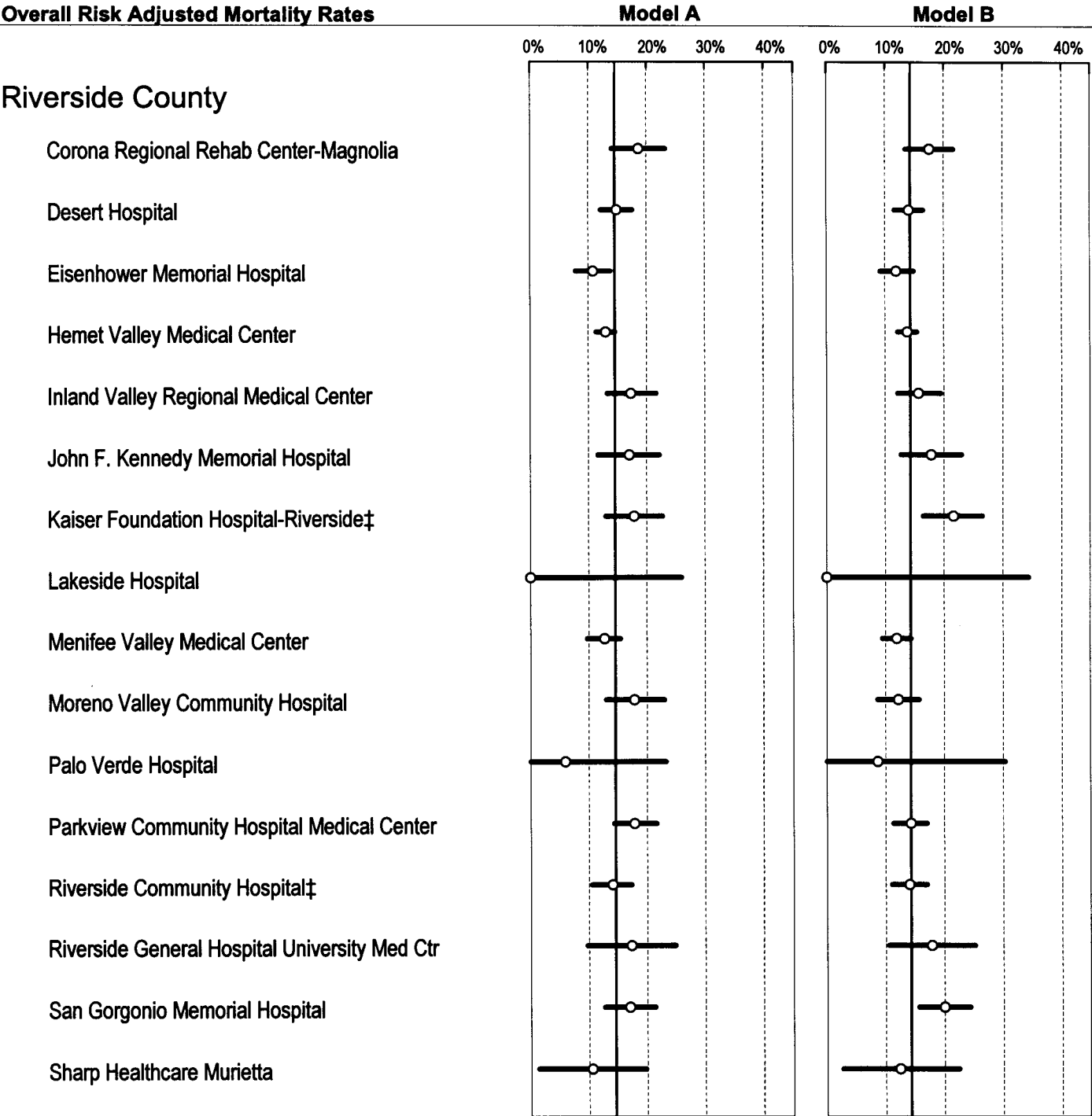
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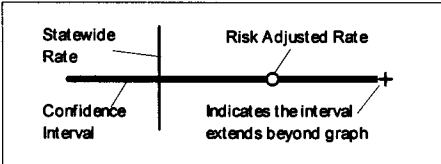


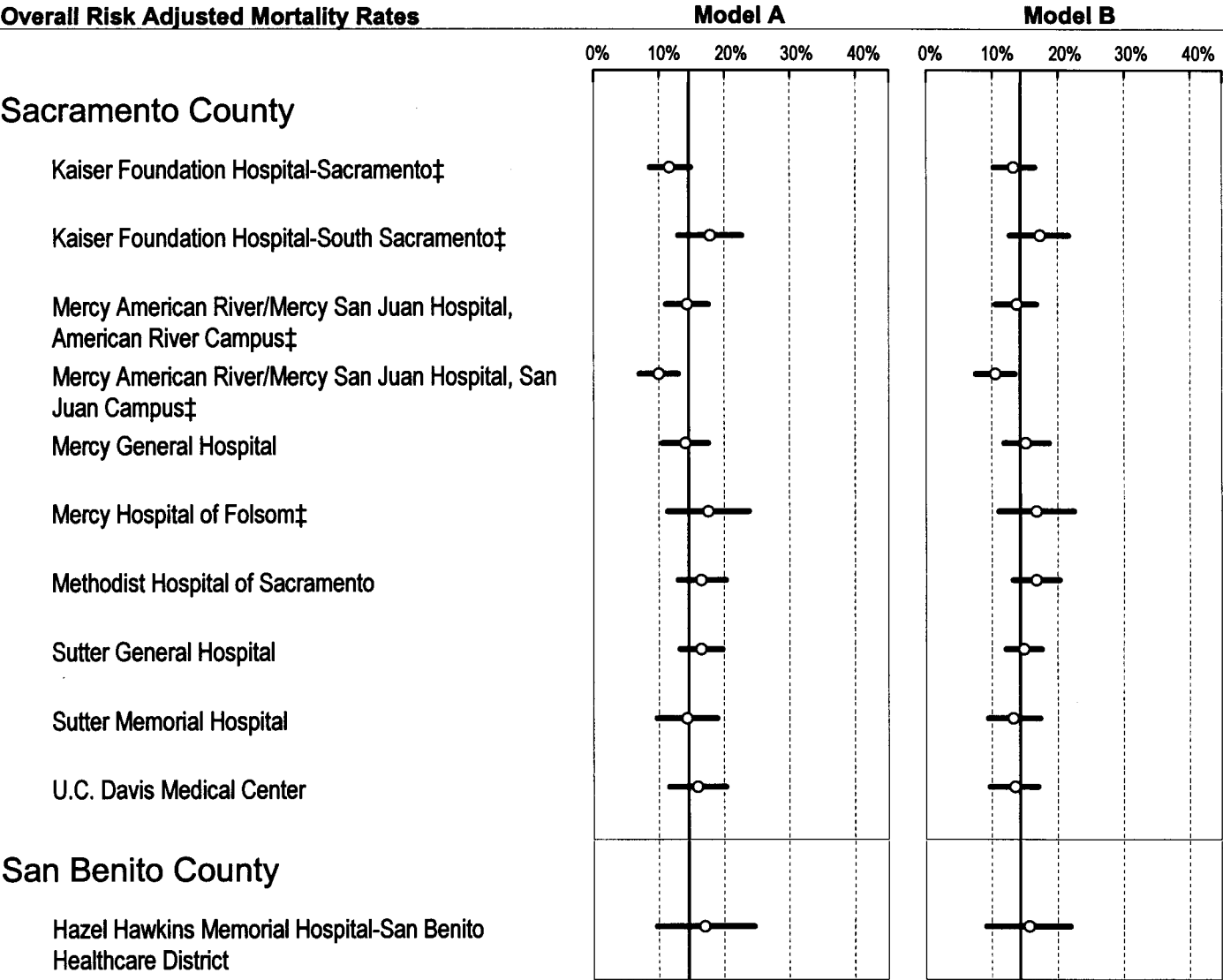
‡ Hospital sent comment letter
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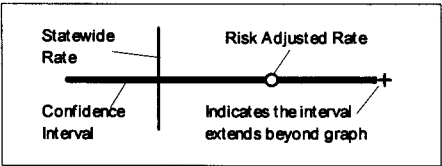


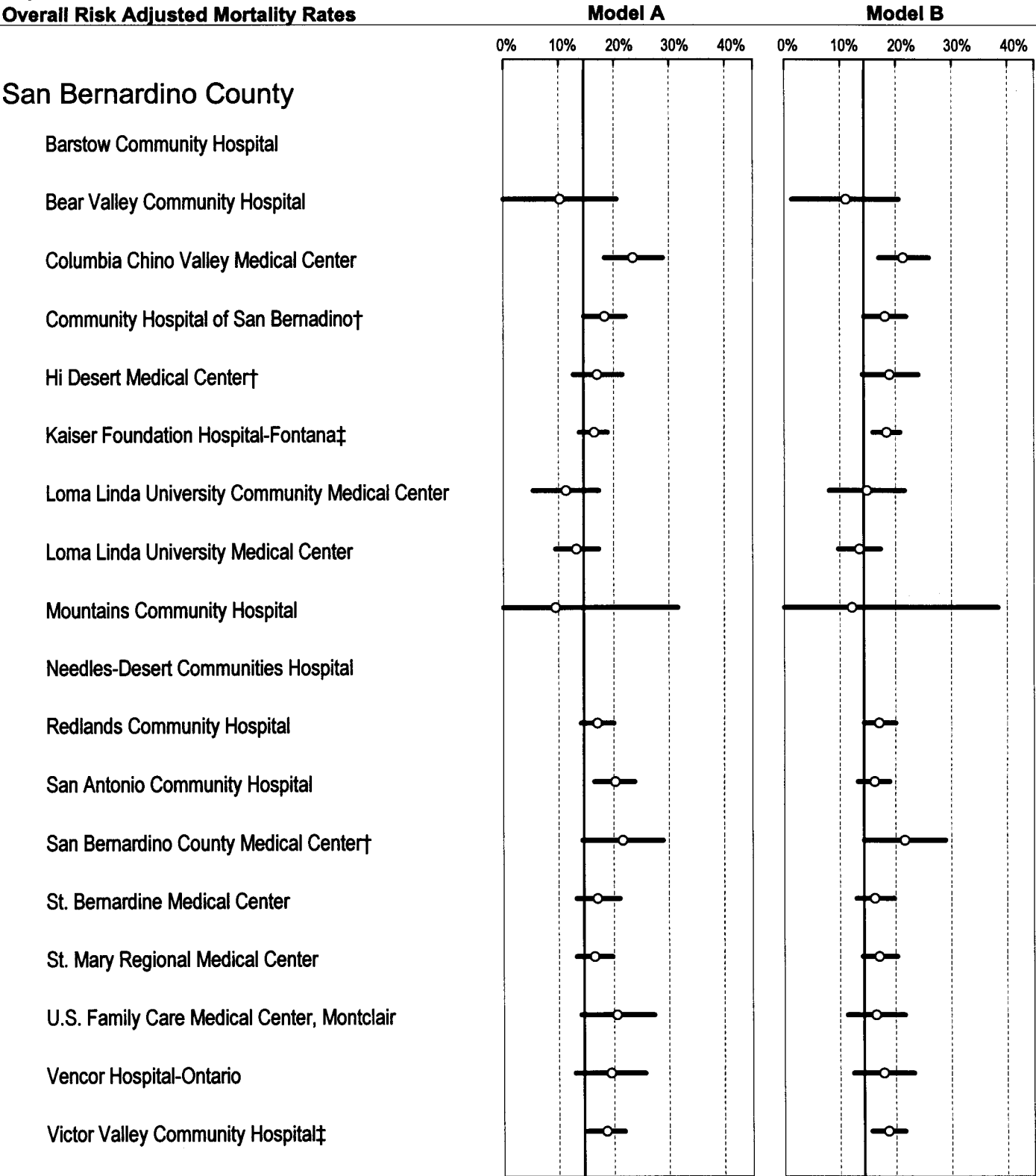
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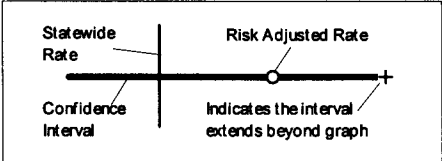


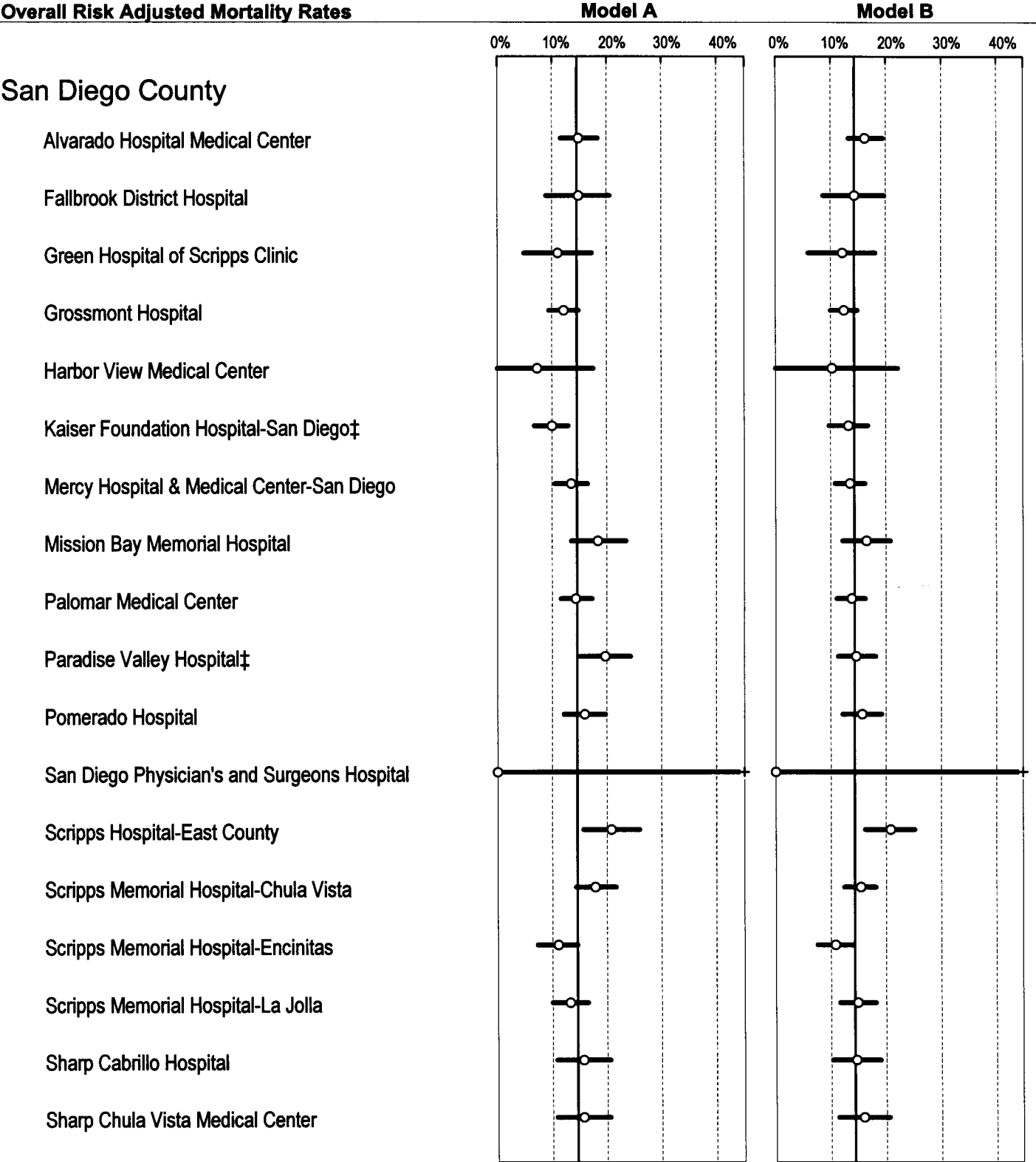
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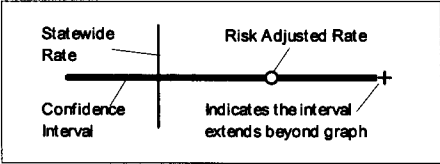


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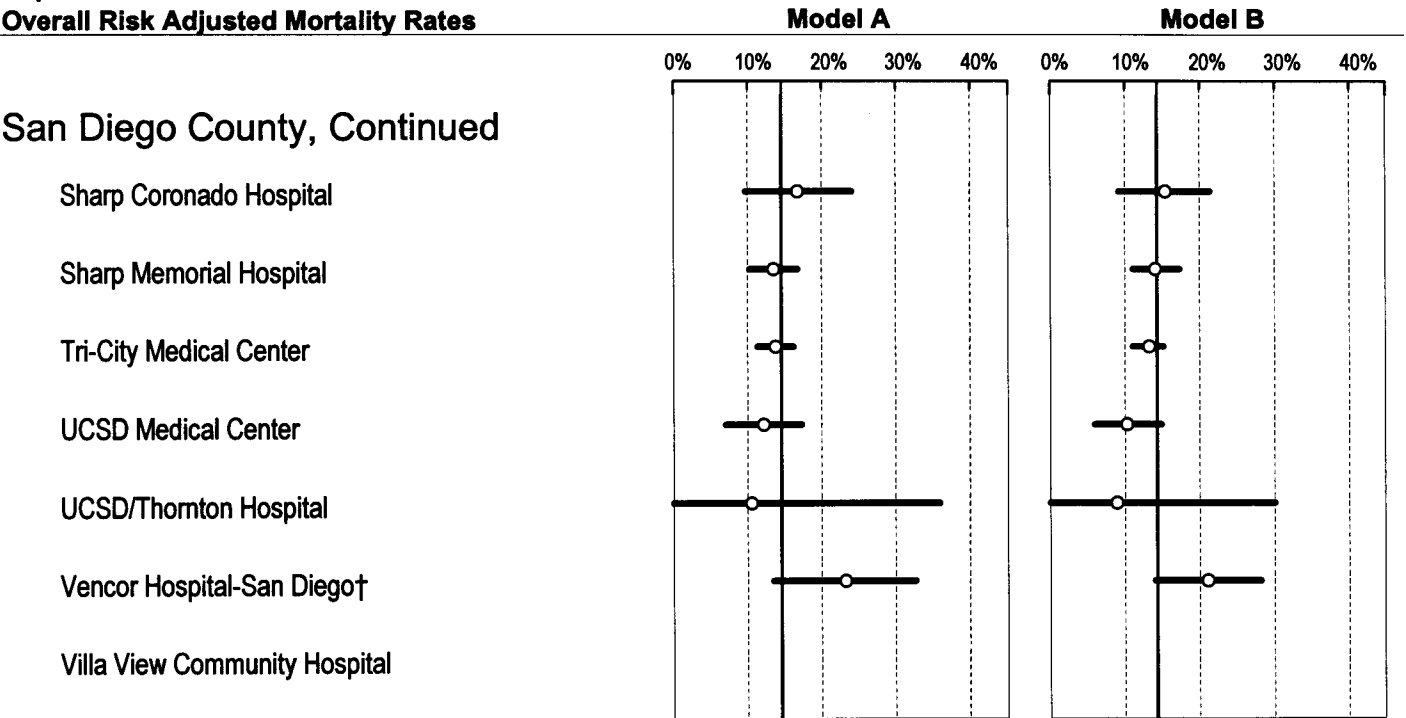




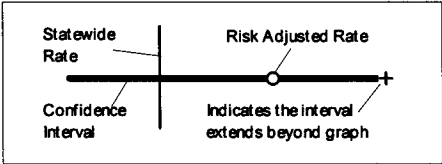
‡ Hospital sent comment letter
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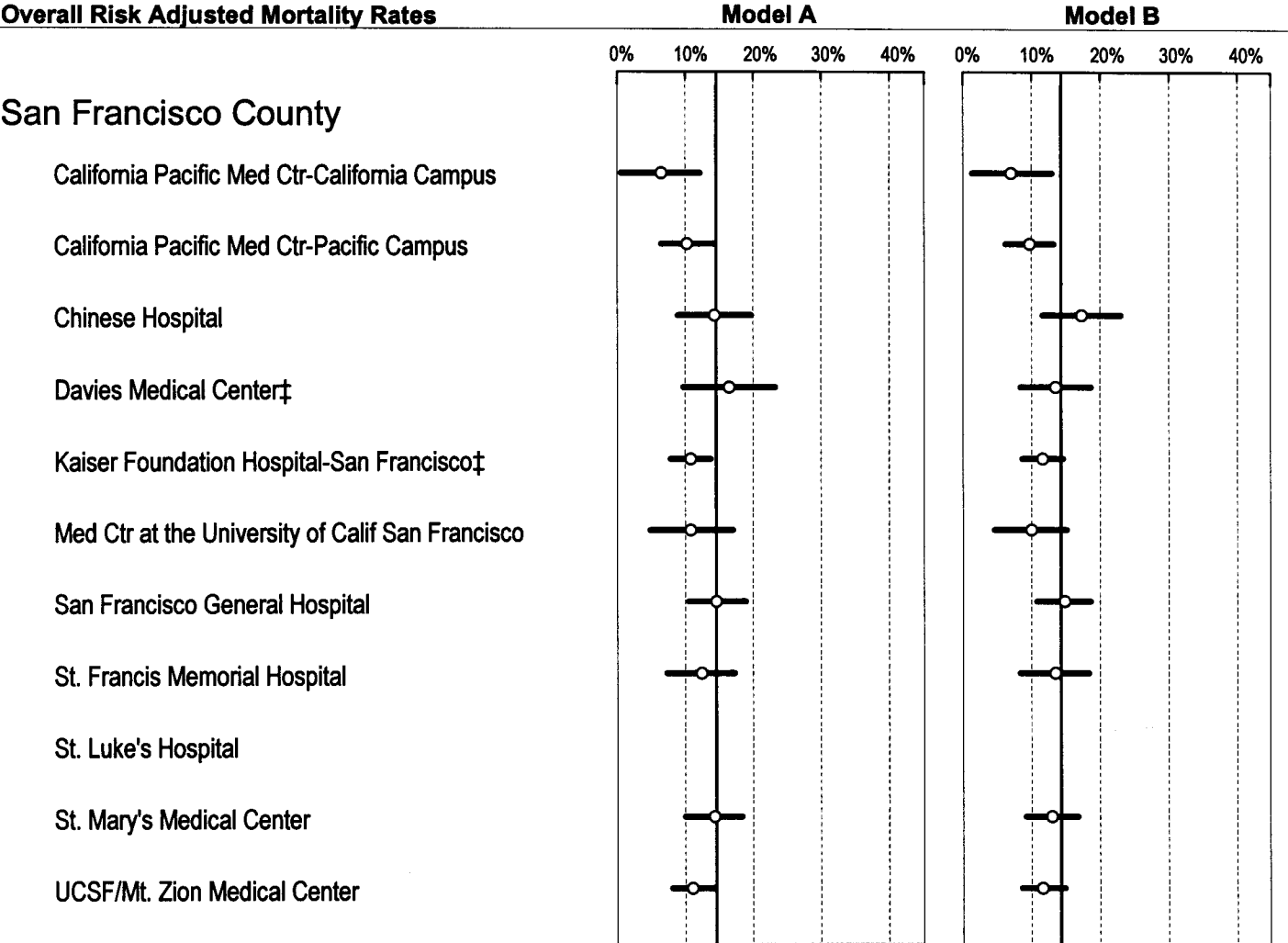


San Diego County, Continued

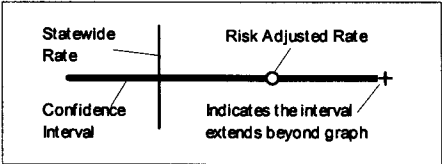


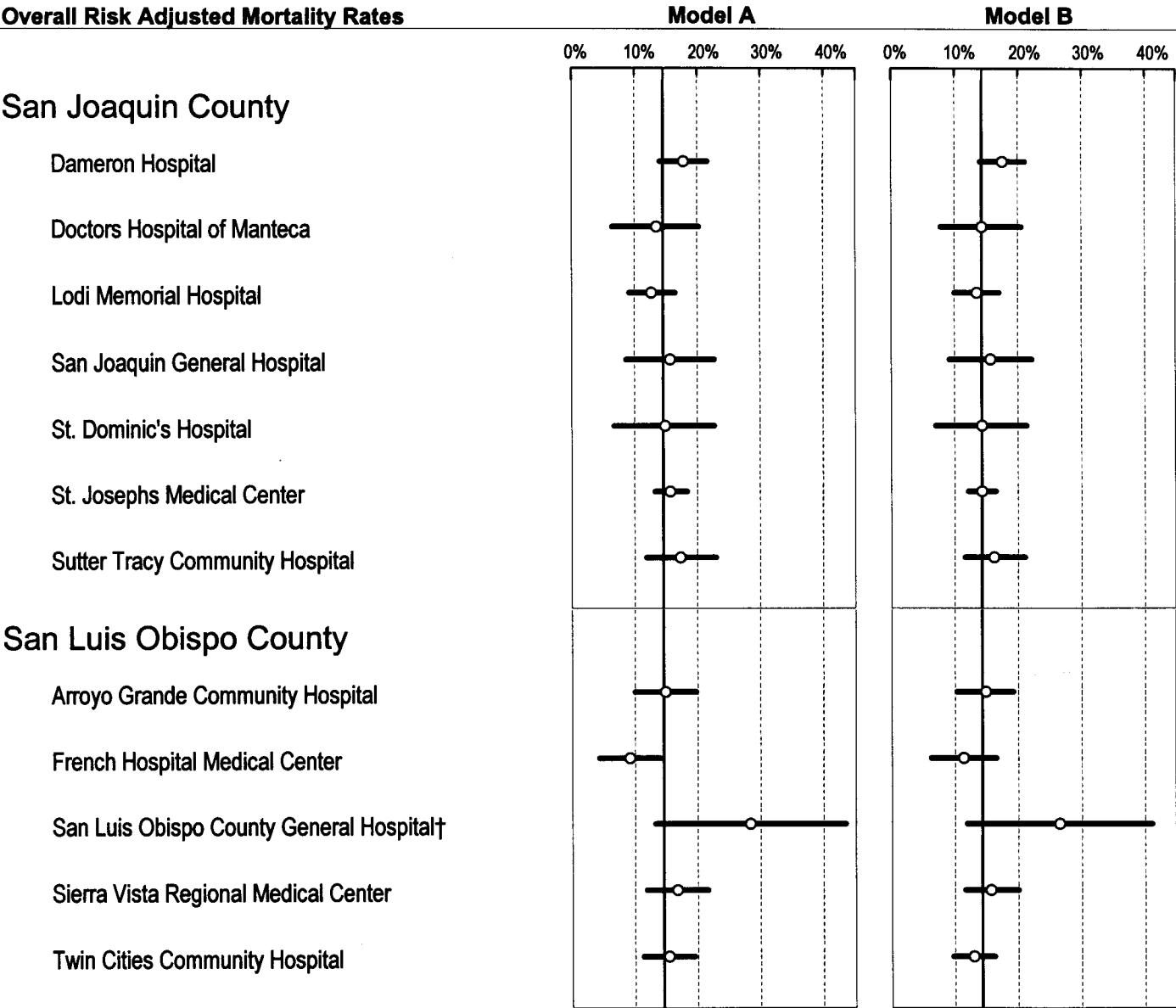
‡ Hospital sent comment letter
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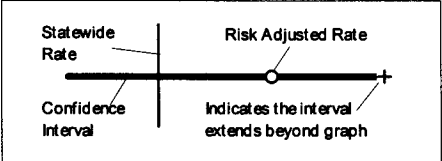


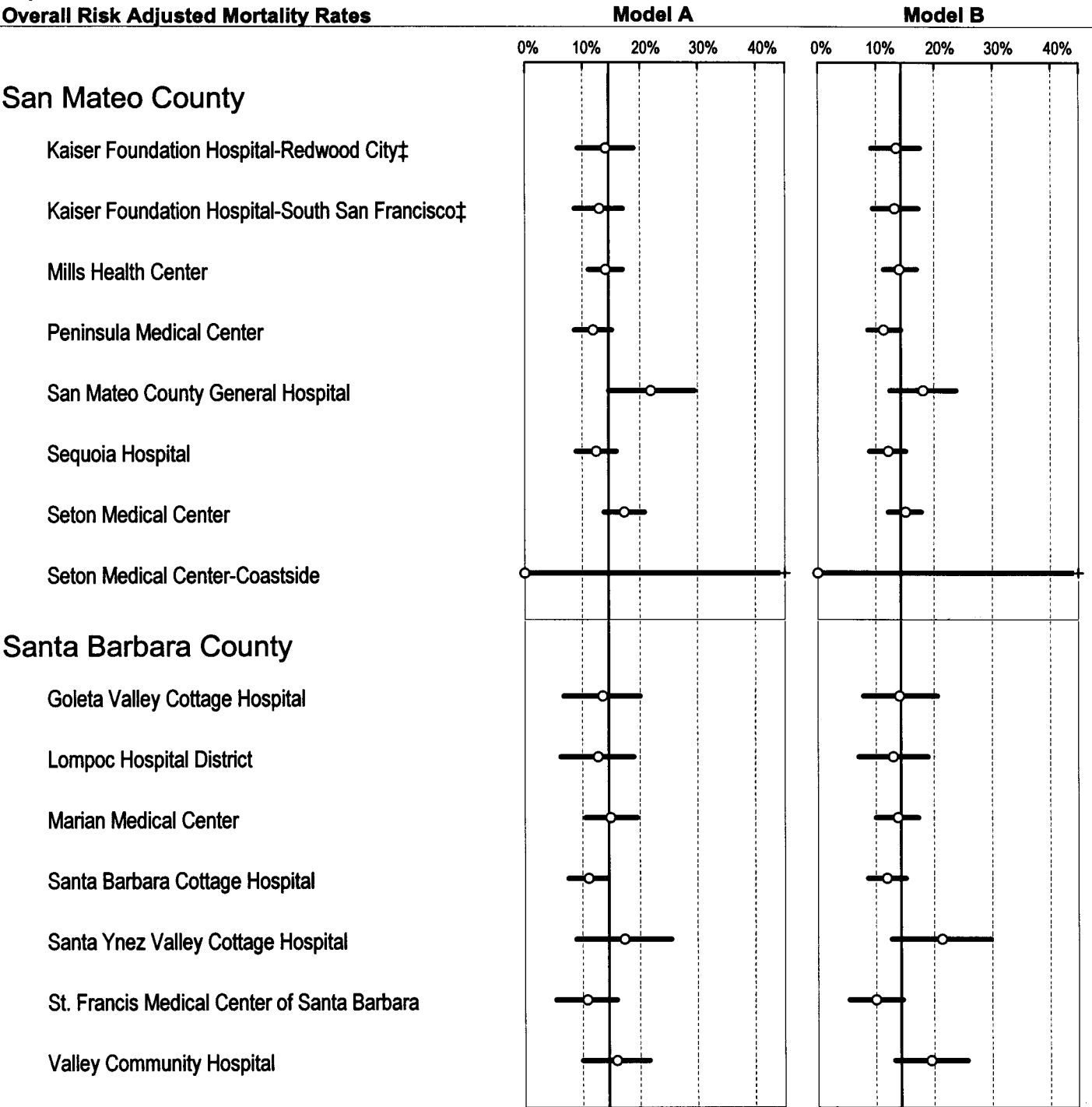
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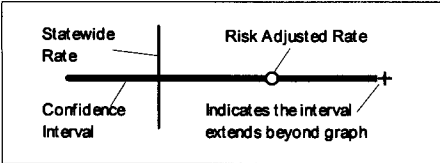


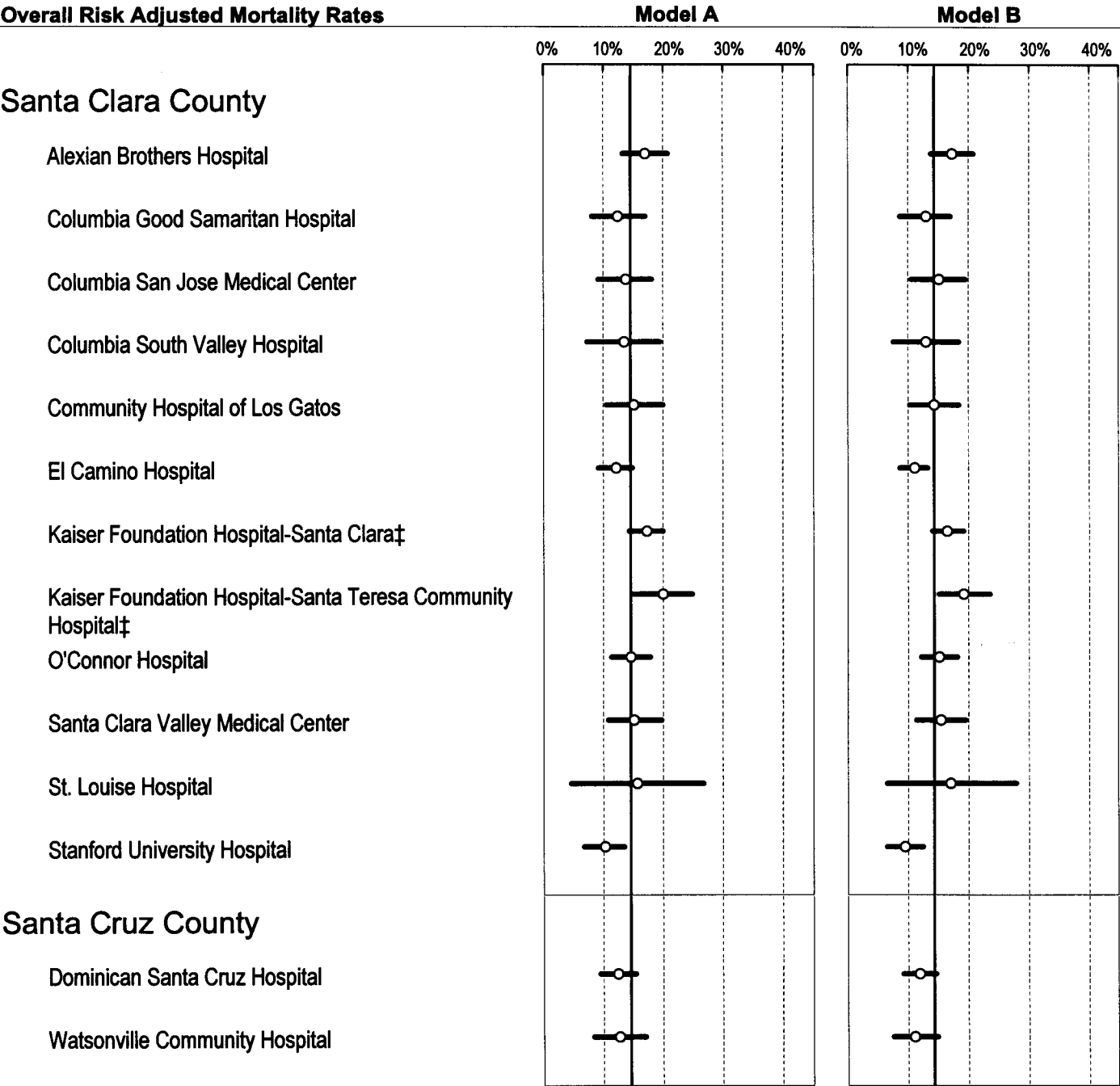
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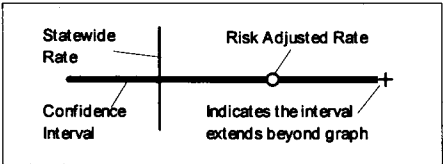


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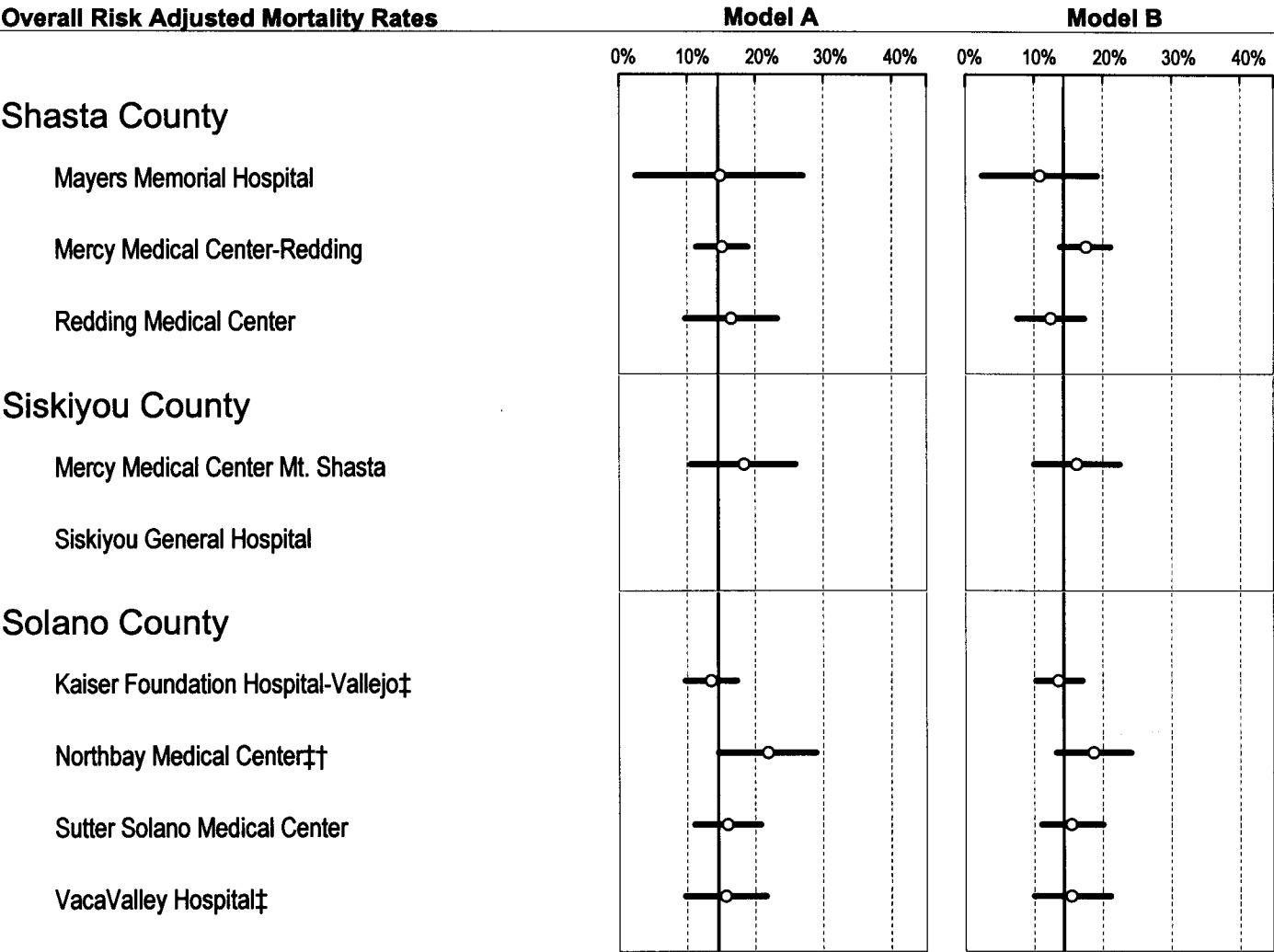




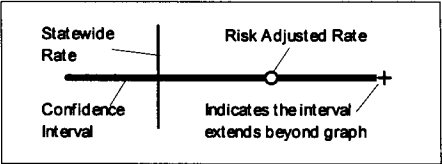
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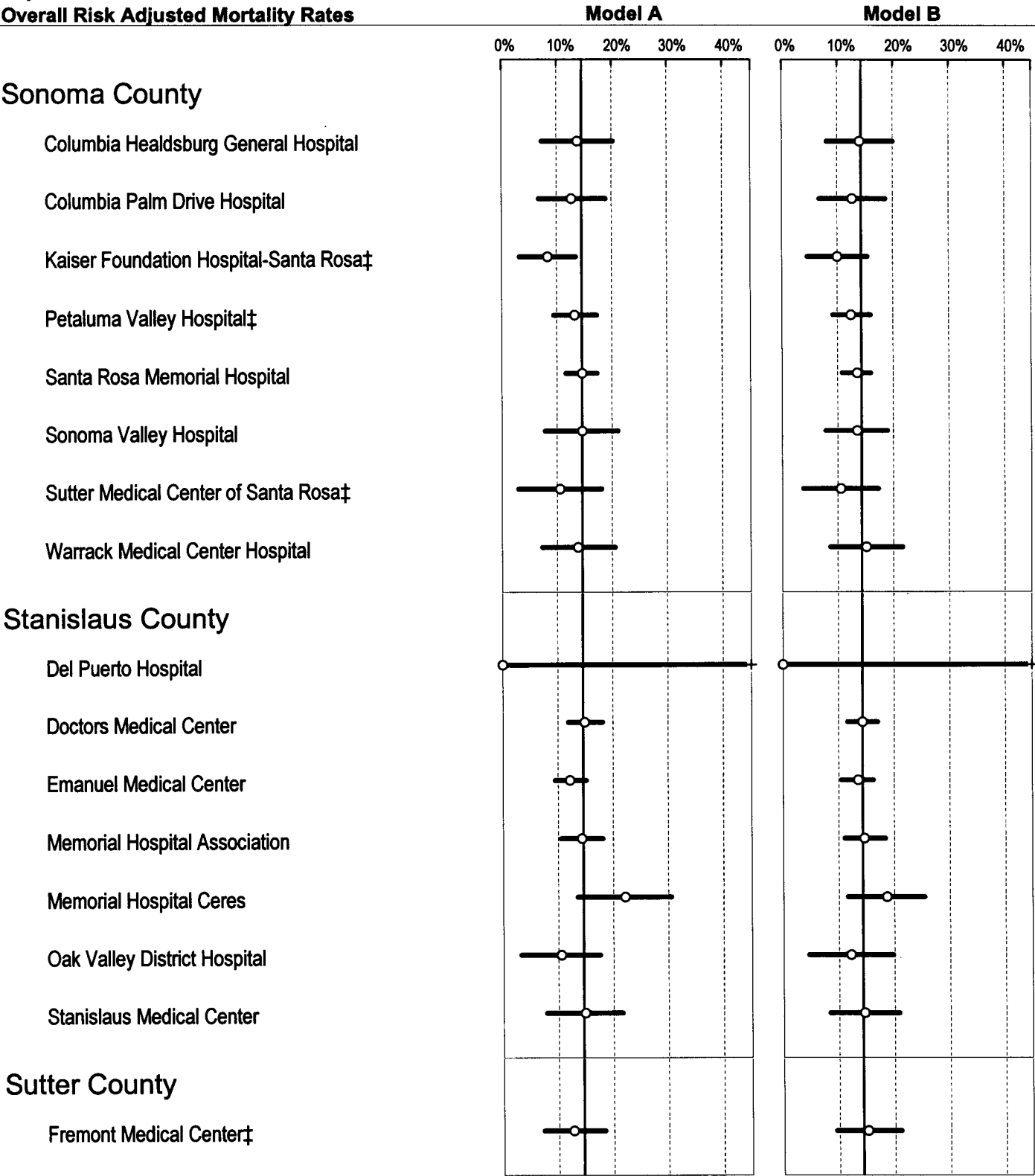


Report on Heart Attack, 1997
Overall Risk Adjusted Mortality Rates

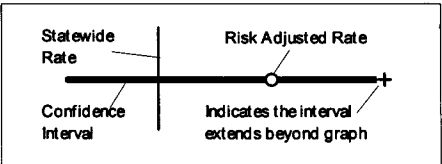


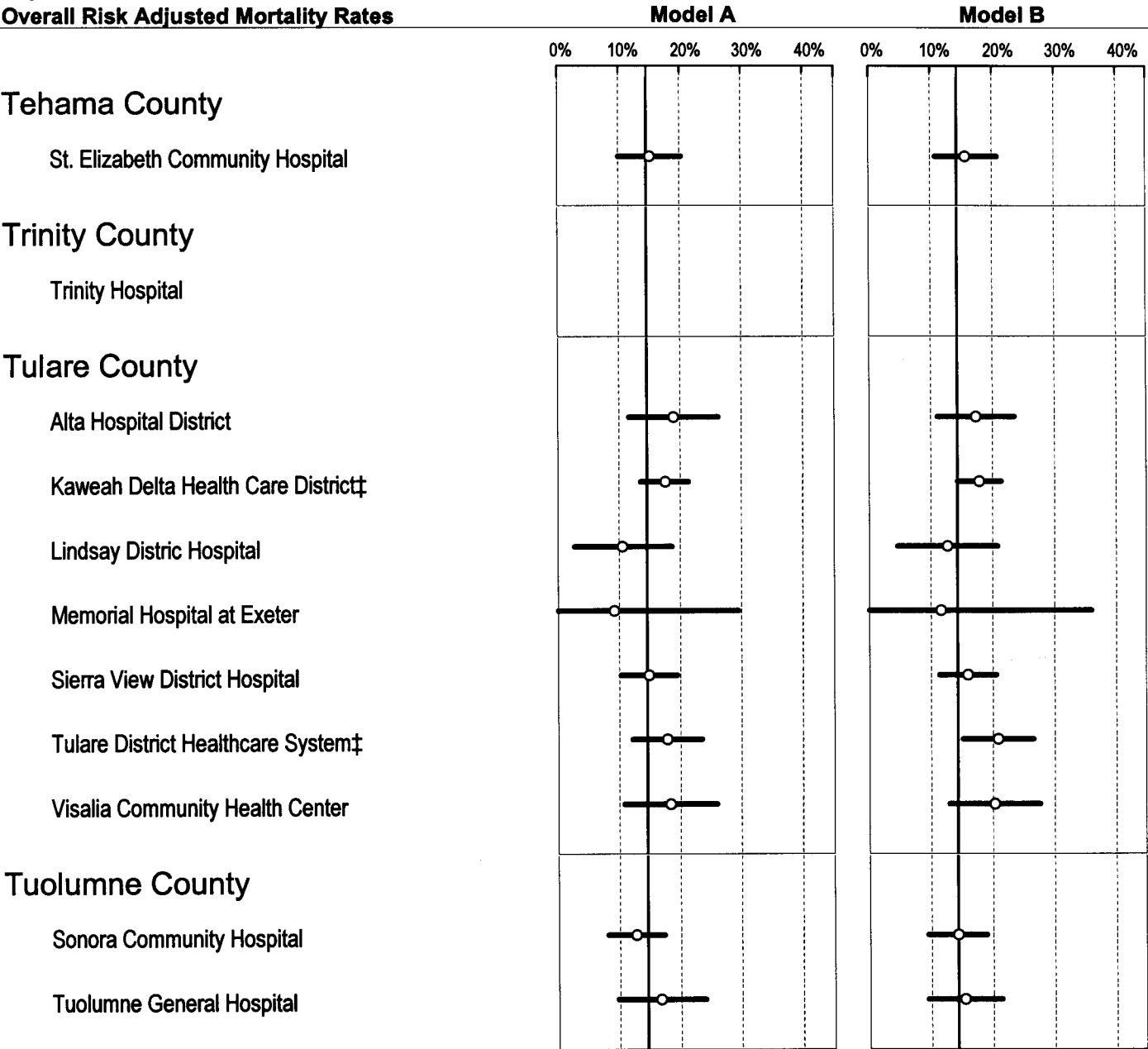
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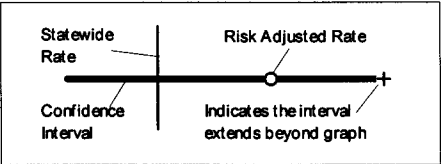


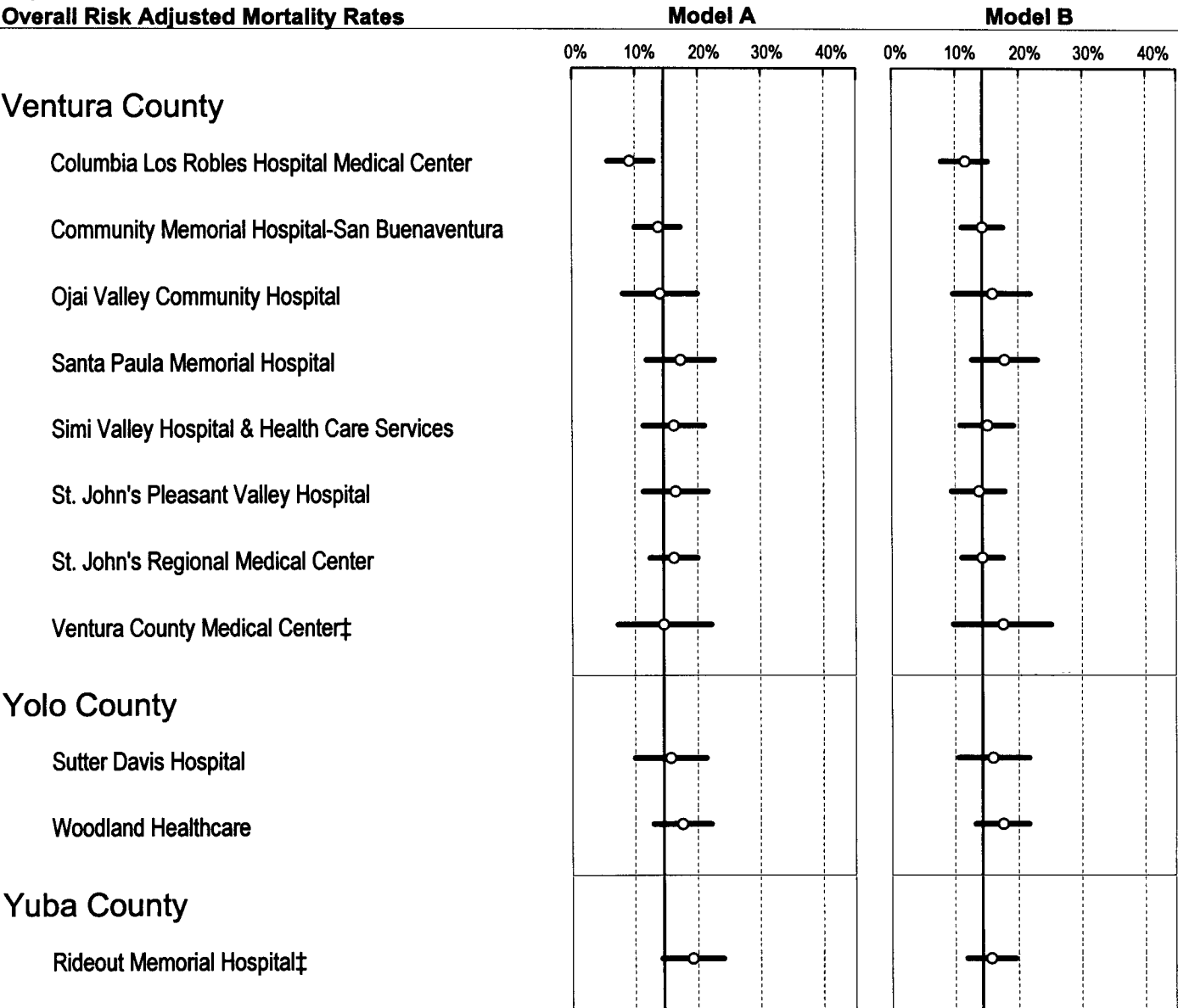
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